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TREATMENT OF CANCER WITHIN THE RECTUM.

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Cancer of the rectum below the level of the pelvic brim and above two inches from the anus is best removed by a combined abdominal and perineal operation as first performed by Czerny in 1884. Various modifications of the original technic have been described because our method of approach cannot be constant, but depends rather upon the extent of the disease, the involvement of other structures and organs, the patient's age, sex and physical condition. Sometimes it is possible to bring the proximal gut down through the sphincter and attach it to the skin, thus preserving the anus in its normal location, but such a procedure leads to the danger of leaving it situ intestine or lymphatics which contain particles of malignant disease.

In all cases where the rectal ampulla is involved an exploratory abdominal section should be made through a liberal median incision.

Where cancer is limited to the colon or movable sigmoid and is entirely surrounded by peritoneum it may be lifted out of the abdominal wound. This operation is quickly performed and causes no great mutilation of the tissues. But where the growth extends below the promontory of the sacrum and is but partially covered with peritoneum, a complete removal through an abdominal incision is attended with many difficulties and mishaps and the combined abdominal-perineal operation is unquestionably the best. It permits a careful examination of the liver and the lymphatics for metastasis and by closely noting the extent of involvement of the rectum and contiguous organs determines definitely whether continuity of the bowel to the anal region may be maintained or whether a permanent artificial anus must be provided. This operation offers the patient the best chance of ultimate recovery and freedom from recurrence. With perineal methods, even after the most complete and extensive removal possible, whereby recurrence in the immediate vicinity is reduced, nevertheless new growths appear in situations beyond the scope of removal via the perineum. Post-mortem examinations show that these recurrences are in (a) the pelvic peritoneum, (b) the pelvic mesocolon and (c) the lymph nodes situated over the bifurcation of the left common iliac artery. In all cases the infiltration of the parietal border of the pelvic mesocolon causes shrinkage of the pelvic mesocolon itself, whereby the pelvic colon appears to be bound down, a condition which readily explains the difficulty in obtaining a satisfactory spur when performing colostomy in an advanced case of cancer of the rectum.

From these observations it is obvious that the above-mentioned structures constitute the zone of the upward spread of cancer from the rectum, the removal of which is just as imperative as is the thorough clearance of the axilla in cases of cancer of the breast if freedom from recurrence is to be hoped for.

The study of the spread of cancer from the rectum has led me to formulate certain essentials in the technic of the operation which must be strictly adhered to if satisfactory results are to be obtained, namely:

1. That an abdominal anus is necessary.
2. That the whole pelvic colon, with the exception of the part from which the colostomy is made, must be removed because its blood supply is contained in the zone of upward spread.
3. That the whole of the pelvic mesocolon below the point where it crosses the common iliac artery, together with a strip of peritoneum at least an inch wide on either side of it, must be cleared away;
4. That the group of lymph nodes situated over the bifurcation of the common iliac artery are in all instances to be removed;
5. That the peritoneal portion of the operation should be carried out as widely as possible so that the lateral and downward zones of spread may be effectively extirpated.

Excision of the rectum is one of the most formidable operations in surgery, entailing, as it does, the removal of practically the whole of the pelvic colon as well as the rectum. A word regarding the practical anatomy and technic will therefore not be amiss. The pelvic portion of the sigmoid is about 16 inches long and extends from the edge of the psoas muscle to the level of the third sacral vertebra. It makes a horseshoe-shaped loop and has a mesentery 1¼ to 3½ inches long. The length

of the loop and also its mesentery is quite variable.

In all cases a preliminary left inguinal colostomy should be performed at least two weeks before the operation and during the interval such attention given as will help to fortify the patient for the removal of the cancer later. Beginning two days before the operation he is given the usual preparation for a laparotomy. When he is anesthetized, the rectum is irrigated with formalin or bichloride solution followed with full strength peroxide of hydrogen.

The patient is placed in the Trendelenburg position and the abdomen is opened with a four inch incision in the median line. A liberal opening is necessary to allow working space. The small intestines are thoroughly packed back to facilitate a clear view of the lower sigmoid and rectum as well as to prevent unnecessary handling and encroachment of other parts of the intestines. The patient is then returned to the horizontal and the sigmoid is lifted out of the wound and held taut, thus bringing the sigmoidal artery prominently into view. The peritoneal covering of the mesosigmoid is slit open close to the gut about two inches above the growth, and with a pair of blunt pointed scissors the incision is continued along about one-half inch from the margin of the gut, thus separating the peritoneal wall from the vessels. This dissection is continued from the sigmoid back to the peritoneal reflexion on the posterior abdominal wall and the ileum. The bowel is then laid on the other side and the peritoneum similarly elevated on that side. The sigmoid artery is traced to its origin in the superior hemorrhoidal artery and just above the junction of the superior hemorrhoidal artery is tied with two ligatures and cut between. In the female the left broad ligament should be detached together with the left ovary and tube. This having been done, the pelvic mesocolon, together with the adjacent strip of peritoneum on either side of it, is detached from the hollow of the sacrum. By keeping close to the anterior sacral ligaments, the cellular tissue containing the lymph nodes in that situation is detached with the pelvic mesocolon in one piece. This separation is continued downwards in the middle line as far as the sacrococcygeal articulation. The sacral wound is now filled with gauze while a similar method of blunt dissection is carried out anteriorly by which means the bladder is detached as far as the prostate gland. Attention is now paid to the separation of the lateral aspects of the rectum and it is here that great care must be exercised to avoid injuring the left ureter, which adheres closely to the peritoneum as it skirts the wall of the pelvis. When the ureter has been defined it should be carefully freed as far as the base of the bladder. On the right side the ureter need not be seen. The dissection is then carried downwards on either side and the lateral ligaments of the rectum are divided with scissors. In these structures the middle hemorrhoidal arteries are found, but seldom require a ligature. This lateral dissection is carried down to the upper surface of the levator ani.

When the rectum has thus been freed on all sides as far as the points indicated, the bowel having been widely loosened should easily reach the normal anus without tension. If it does not do so the operator determines whether it is held by the mesosigmoid or by the bloodvessels. If the mesosigmoid needs further loosening it should be incised. The blood supply is next examined to be sure it is sufficient before proceeding. Arterial capillary pulsation must be felt in the parts. At the recto-sigmoid junction is a portion of the bowel sparingly supplied with end branches. The lower sigmoid arteries supply from above, and from this point down the bowel is supplied by the superior hemorrhoidal, but these two arterial systems do not anastomose. If the superior hemorrhoidal is cut above its distribution to the rectum the lower end of the gut will not have sufficient blood supply and will slough, thus causing infection and death. This is a pertinent question in every case of cancer above the level of the floor of Douglas' pouch. When satisfied that the divided bowel will reach the anus with good blood supply the abdomen is well protected with pads and the bowel divided with a cautery and the bowel ends closed with Lembert sutures. The rectum is now separated from the lateral ligaments and the whole of the detached structures are crowded down into the pelvis and covered with sterile gauze. Provided that the divided end of the colon has been firmly closed, considerable pressure may be made upon it from above without fear of leakage. The edges of the pelvic floor, and the abdominal incision is closed. The patient is then placed in the exaggerated lithotomy position and the detached mass is extirpated through the perineal route as in cancer at the anus. The proximal end of the gut is brought out at the perineal wound or as an abdominal anus as best suits the individual case.

When the cancer is situated high in the sigmoid efforts at removing it and providing the continuity of the lumen of the gut by end-to-end anastomosis or lateral anastomosis have been followed by a very high mortality due to leakage.

INJURIES TO THE WRIST.

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We shall consider only the bony and articular lesions of the wrist, excluding the lesions of the soft parts, which are nearly always associated with wounds of the integument. This subject is one of the oldest and newest in the field of pathology; it is as old as medical observation itself, but on the other hand it is actually a recent subject, because for the last few years, there has been great divergence of opinion as to the interpretation of lesions at the wrist, and their mechanism is still under discussion.

From the time of antiquity up to the middle of the 18th century, traumatisms of this region were considered as radio-carpal luxations.

It was not until the description of Pouteau which appeared 30 years before that of Colles, that the fracture of the lower end of the radius was brought clearly to light and its extreme frequency proved, quite overshadowing that of articular displacements, theretofore regarded as the most common wrist lesion. Indeed, Dupuytren denied the occurrence of these latter, and so blindly were this great surgeon's teachings accepted that fracture of the radius came to be the only recognized traumatic lesion at the wrist. But the era of controversy has ended. During the last 20 years, radiography has definitely cleared up all uncertainties. It has shown that while fractures of the radius are by far the most frequent lesion, they do not comprise the entire traumatic pathology of the region. *Luxations of the carpus* do occur, are seen frequently and have a serious prognosis. However, it is not total displacements of the wrist, dislocations of the carpus *en masse,* which are extremely rare, that the average surgeon is apt to encounter, but the *partial* luxations, isolated luxation of the small carpal bones, and especially those which we shall term the *"sub-total retro-lunar luxations."*

Radiography alone is not sufficient to explain the mechanism of these lesions, it cannot portray the important rôle of the ligaments, which only experimentation has been able to demonstrate. We have associated the two methods of investigation, they complete and control each other, reciprocally.

Thus it will be seen that our knowledge of traumatisms of the wrist has been revised by modern researches, to which we have added our own personal contribution. In fact the investigations of the present epoch, are sufficiently numerous and fruitful to completely alter this field of pathology. But in view of the fact that we are to present only a brief paper, we limit ourselves to the three most important types amongst the numerous varieties of traumatisms of the wrist:

(1) Fracture of the radius occupies the first position. We know definitely that there are two types, different both in their lesions and in their production. The first is fracture by tearing apart (arrachement), extra-articular, at about one and a half centimeters above the joint, without impaction; the other is the fracture by compression (enfoncement) onto the carpal bulk, intra- and extra-articular at the same time, often comminuted, with much impaction, and always most prominent posteriorly.

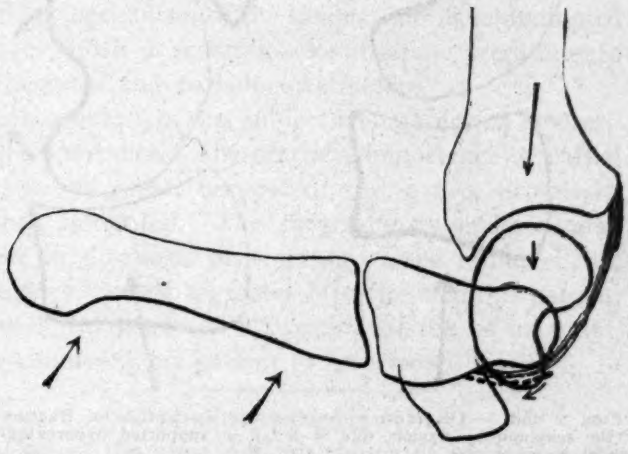


Fig. 1—Mechanism of fracture of the scaphoid by opening of the angle (by extension). The bone is broken in attempting to reassume the normal position, the vault impinging against the radius. The small arrows at either end of the bone do not converge. The large arrow above indicates the radial push, the other two large arrows indicate the points which bear the weight of the fall. The dotted line indicates the scapho-capital ligament whose action is considerable.

(2) Among the small bones of the carpus, the situation, shape, and physiology of the scaphoid compel it to function in such fashion as to predispose it to fracture.

We have found two mechanisms of fracture of the scaphoid—same are produced by *exaggeration of the argulation* of its two component parts, vault and base, i. e. *by extension*; others are due to closure of this angle, i. e. *by flexion.*

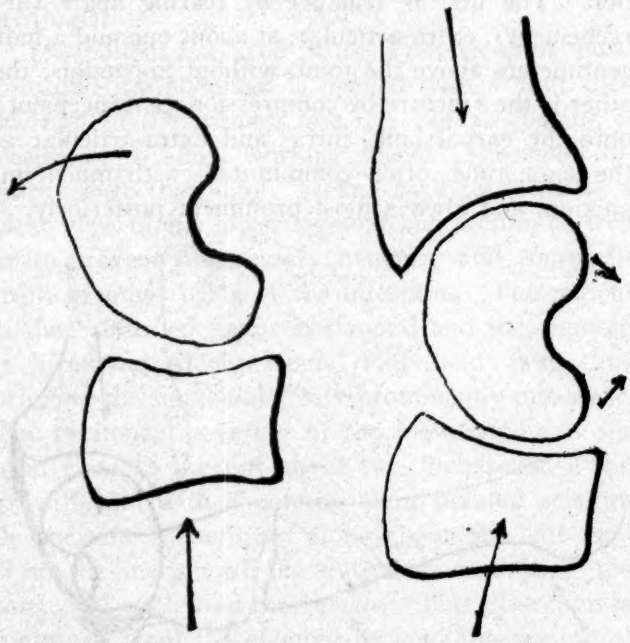
Figures 1, 2 and 3 illustrate this.

(3) There is finally, the curious lesion called, by some, forward dislocation of the semilunar and, by others, backward dislocation of the os magnum, and which is considered by ourselves, subtotal retrolunar displacement of the carpus. It is characterized by the fact that not only does the os magnum pass behind the semilunar, but also all the other small bones of the carpus (figure 4).

How is this lesion produced? Nearly always by

a fall in hyperextension on the metacarpus, or on the ball of the hand, particularly if the ball of the hand is only turned moderately backward, and inclined at the same time, towards the ulnar side.

The essential mechanism is as follows, the anterior ligament is torn, invariably between the semilunar and os magnum. The head of the latter is released from its semilunar cap and passes through the hiatus in the capsule. The dorsal horn of the



Figs. 2 and 3—Diagrams to explain the mechanism of fracture of the scaphoid by flexion, due to a fall in supported hyperextension.

Fig. 2—When the trapezium pushes from below upwards, against the base of the scaphoid, the vault of the scaphoid rotates backwards if not opposed by the radius.

Fig. 3—The radius is pictured; it bears down with full weight on the vault of the scaphoid, prevents the scaphoid from rotating backwards, the angle of the scaphoid is diminished, and the bone is fractured by flexion-closure of the angle.

semilunar slides over the neck of the os magnum, then over the vault and finally reaches a position anterior to the os magnum. When the hand returns to its proper position, the head of the os magnum passes definitely behind with the rest of the carpus. (figures 5, 6, 7).

The semilunar may remain in complete articulation with the radius; usually, however, it see-saws more or less, with a tendency to assume a vertical position; occasionally it is enucleated like a cherry pit and is separated altogether from the radius.

Finally, fracture of the scaphoid by extension is often associated with subtotal luxation, without any marked alteration in the character of the displacement. (In more than half of the cases).

This subtotal luxation of the carpus practically always occurs in adults, between the ages of twenty and fifty years, and usually in men who have been subjected to a violent traumatism (fall from a certain height,—masons, carpenters, roofers; fall from a horse, bicycle or aeroplane; rebound of the crank of an automobile.)

Severe pain and swelling of the wrist, are the first signs. The carpus is widened in the antero-posterior direction; it is at the same time foreshortened, at least when the semilunar is enucleated. The normal relation of the styloids of the ulna and radius is maintained, the latter slightly lower; this sign enabling us to exclude fracture of the lower end of the radius, and to consider a lesion of the carpus. Care must be taken not to mistake the interior part of the radius for the styloid of the radius, because when the styloid is detached by a

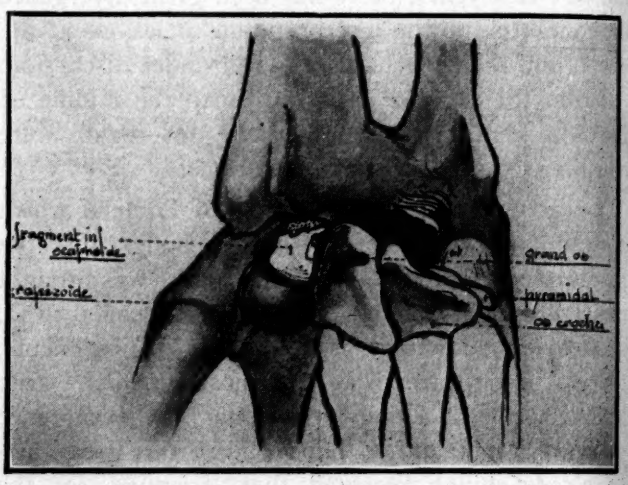


Fig. 4—Subtotal retro-lunar luxation of the carpus, with fracture of the scaphoid.
The semi-lunar is displaced forward and remains invisible from behind.

fracture, it assumes a position in front of the radius. It is always necessary in addition, to radiograph the parts, making at least two plates, an antero-posterior and a lateral.

The deformity caused by retro-lunar subluxation is sometimes similar to the silver-fork deformity caused by fracture of the radius, but the hump of the fork is situated further down.

The anterior projection of the semilunar cannot be palpated, except when the bone is enucleated, and especially if it has rotated (90° or occasionally 180°). This projection must be looked for above the inferior fold of the wrist; the semilunar is an antibrachial bone.

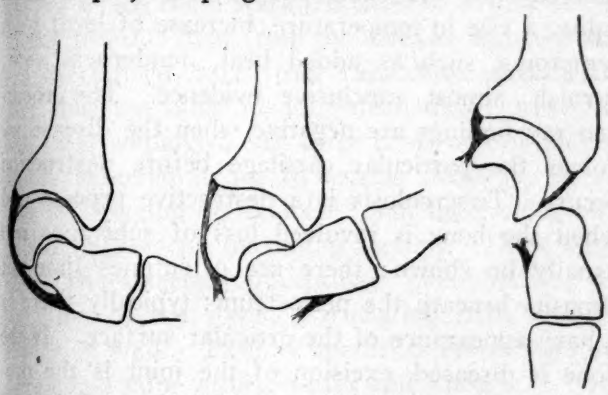
The complications of nerve compression (the ulnar sometimes, but usually the median caused by the straddling of the semilunar) is frequent.

When a retro-lunar luxation has existed undiagnosed and the surgeon is called in at the end of three or four weeks, two symptoms should immediately excite suspicion of this carpal lesion—first, the attitude of the hand which remains "fixed," an excellent but inconstant sign; second, marked weakness

in flexion of the fingers and in grasping. This weakness is always the consequence of a luxation of the carpus, it is rarely seen in fracture of the lower end of the radius.

It should be emphasized, that subtotal luxation of the carpus is a serious injury, if not properly treated. Undoubtedly, there are scattered cases, in which fairly good functional results have been obtained without treatment, but these are exceptional.

When this lesion is associated with a fracture of the scaphoid or any other carpal bone (os magnum, for example) the prognosis is worse.



Figs. 5, 6, 7—Mechanism of subtotal retro-lunar luxation of the carpus.

Fig. 5, first stage—Hyperextension at right angles. Capsule intact, but stretched to its maximum.

Fig. 6, second stage—Hyperextension beyond right angles. The capsule is torn, beneath the semi-lunar. The os magnum accentuates the flexion of its head, which now protrudes from its socket.

Fig. 7, third stage—The semi-lunar has slid over the neck of the os magnum, and has posted itself according to the traction of the radio-lunar ligaments. The luxation is established.

Retro-lunar luxation of the carpus demands reduction, like all other dislocations, even when associated with fracture of a carpal bone, or nerve lesions. The only possible danger in reduction exists in those cases where the semilunar is dislocated 90°, or where the lesion has existed for more than a month. But even if intervention is delayed for more than a month, reduction is feasible and effectual. It should be done under general anesthesia. The surgeon should grasp the hand of the patient firmly, and exert traction in the direction of the axis of the forearm, at the same time moving the wrist slightly so as to make it supple. The hand is then brought into dorsal flexion, while traction is maintained and inclined slightly to the ulnar side. At the same time, pressure is exerted gently with the thumb over the palmar surface of the semilunar. Finally, the surgeon moves the hand, quickly from dorsal to palmar flexion. During this manipulation the semi-lunar may be felt slipping into place. This is followed by immobilization for four or five days, hot baths, hot air, gentle and slow mobilization. A slight stiffness of the wrist often remains.

If the condition has been properly reduced the luxation will not recur. The misnamed recurrences are luxations that were not really reduced.

Reduction should be immediately verified by a profile radiograph.

In case the semilunar is fractured, or the condition has lasted more than one month, reduction should not be attempted; the semilunar should be removed under local anesthesia, with the superior fragment of the scaphoid, (if fractured). The incision is made on the palmar surface just within the palmaris longus.

This new chapter of surgical pathology has been written by French science. The names of Destot, and de Pierre who first discovered the lesion, head the list. We have followed the work of these leaders, have made an experimental study of the articular physiology, have added our own interpretation of the mechanism of the lesions, and have attempted to establish a scientific classification according to etiological and pathological factors.

In conclusion, this subject has more than theoretical importance. The practical importance of carpal lesions is great, because of the grave prognosis, when untreated. The surgeon may make a mistake in diagnosis of fracture of the radius, if so, he does himself a greater injustice than his patient. But if he overlooks a luxation of the os magnum, he condemns his patient to a serious disability.

NOTHING NEW.

One of the most difficult things of modern times is to do or say something that is entirely new. This applies to every vocation, to all walks of life. Perhaps it is because progress is a series of events, each one reflecting the other, blended and interwoven. The good surgeon, after toiling long to perfect some useful procedure, which by him is believed to be the first of its kind, carries his findings to the medical press; but the investigative curiosity aroused by the announcement of the unusual soon brings to light the fact that much of his claim to originality is already set forth in the dust-covered records of former years. Two men, writing upon kindred subjects, unconsciously follow the same line of thought and reach like conclusions. The wisest man of ancient days, gazing out into the realms of art, science and literature, if perchance he might add to his great storehouse of knowledge, exclaimed in tones of disappointment, "There is no new thing under the sun." If Solomon, with all his learning, could make this sweeping exclamation, what shall we say, after centuries of accumulated fact! Much that seems new, therefore, is forgotten lore, unveiled and recast to meet the requirements of the age.—T. L. DEAVOR in *The International Journal of Surgery.*

THE TREATMENT OF KNEE JOINT INFECTIONS.

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Insomuch as infection of the knee joint may owe its origin to a multitude of causative factors, necessarily the treatment must likewise be varied accordingly to adequately fulfill the indications in individual cases. The objects sought to be attained are: (a) elimination of the infection, and (b) restoration of function. Unfortunately these desiderata are not always possible of accomplishment under the most approved plans of management. The reminder may seem superfluous that in every type of joint infection conservative treatment should be given a thorough trial before resorting to more radical methods which entail complete and permanent loss of functional capacity. The object of this paper is not to review the entire subject of knee joint infections, but to specifically consider the treatment of certain types due to well recognized causes.

TUBERCULOSIS: The treatment of tuberculous joint disease in childhood should always be conservative, since duration of the disability period is relatively an unimportant factor. Radical operation would necessitate removal of portions of the epiphysis and the epiphyseal cartilage which would result in permanent shortening of the affected limb. By mechanical treatment there is reasonable assurance of ultimate recovery from the disease with retention of the power of motion.

The treatment of a tuberculous knee in the adult is quite a different proposition. When it has been definitely determined that permanent damage has been done, thorough removal of the focus of infection is indicated. Resection is the procedure of choice, placing the knee in the position of election, which is between ten and fifteen degrees flexion; this position is most convenient to the patient in going up and down stairs and also in sitting. There is, however, more strain placed on the joint in this position, and if there is reason to believe the bones will not firmly unite, an autogenous graft should be inserted for reinforcement. Resection of the knee joint and the flexed position will create a varying degree of shortening, which may be overcome by placing a cork elevation beneath the heel and longitudinal arch of the foot inside the shoe causing the foot to acquire the position of equinus.

Osgood and Bull state that the centers of bony growth during childhood are in direct anatomic relation to the joint, and disturbance of these centers may seriously affect development of the limb. In adults the disease once established seldom fully recovers without operative intervention. The diagnosis of knee joint tuberculosis cannot be made with certainty in the acute stage. Several other monarticular affections may be mistaken therefor: subacute gonococcal infection, syphilis, villous arthritis, simple chronic arthritis, traumatic arthritis, etc. The authors believe tuberculosis may sometimes be primary in the synovia. The von Pirquet test is only of negative aid in excluding tuberculosis; the subcutaneous test is of great value; a rise in temperature, increase of local joint symptoms, such as added heat, tenderness, etc., furnish almost conclusive evidence. The roentgen ray findings are negative when the disease involves the particular cartilage before destruction occurs. Tuberculosis is a destructive process and when the bone is involved loss of substance will usually be shown; there are oftentimes lime-salt deposits beneath the periosteum; typically there is a hazy appearance of the articular surface. If the bone is diseased, excision of the joint is the procedure of choice. A plaster dressing (Spica) is applied extending from the toes to above the iliac crest. Firm callus is usually present in four to eight weeks, and weight-bearing with artificial support is commenced at two months.

In the treatment of tuberculous osteo-arthritis of the knee joint, Perera claims the immobilizing bandage is indicated only in cases where there is an acute onset, in painful arthritis, in tuberculous hydrops with notable edema, and in fungous synovitis; that it is contra-indicated in abscesses and after surgical procedures. For correcting vicious positions traction and massage are employed. Functional rest should be rigorously insisted upon without fear of ankylosis.

From various substances injected into the articulation or into abscesses, I have never noted the slightest benefit, and on several occasions am sure the treatment has been harmful, i. e., in tuberculous joints and abscesses resulting therefrom. Heliotherapy is indicated in all tuberculous joint lesions in which there is a discharging sinus or chronic ulceration from any cause. Extra-epiphyseal tuberculous foci, if any exist, should be excised. Typical resection is only a means of last resort in children; in adults it is preferable to amputation.

GONOCOCCAL INFECTION: The knee joint is most frequently involved as a complication of so-called "gonorrheal" infection. Thorough treatment of the primary focus is the first indication, this to be followed by aspiration if the joint is distended with

fluid. The fluid should be replaced by two per cent. formalin in glycerine as advised by Murphy and others, after which fixation dressing and traction sufficient to prevent joint contact should be applied. Existing conditions may require wide variation in the treatment of gonococcal arthritis. The articular lesions may be either acute or chronic in character, and may be noted at any period during the course of the primary infection. Vaccines have been employed in this class of cases with varying degrees of success.

A report from the Babies' Hospital, New York, shows seventy-eight cases of Neisserian infection among which there were ten cases of arthritis. Six of the patients died from the disease, and two others succumbed later from exhaustion despite the fact that the most modern methods of treatment had been employed. In three cases of this type in adults referred to me it became necessary to resort to resection of the knee joint, there being only a few degrees of remaining motion. These cases were characterized by chronic inflammation, destruction of the joint, excruciating pain, and inability to walk. Radical operation (resection) resulted in a cure with a useful stiff knee.

COMMON INFECTIOUS DISEASES: Arthritis may complicate or follow any of the ordinary infectious diseases. The age of the patient, the general condition, the type of infection, etc., will frequently govern the character of the treatment to be applied. In the interim two suggestions seem of practical value: place the knee at rest with the leg extended. Apply traction, and in this way prevent deformity. Formerly pain absolutely governed the amount of artificial motion of diseased joints; in other words, movement of the joint was continued to the point where the patient complained of pain and then discontinued. Our former theories in regard to joint movement have recently been somewhat upset, as will be emphasized later in this review.

SYPHILIS: Syphilitic involvement of joint surfaces is much more common than hitherto believed in both the so-called inherited and the acquired types of the disease. Ostitis, periostitis, arthritis, osteomyelitis, and many other osseous and articular lesions may owe their origin to luetic infection. In not a few instances syphilis is unsuspected or unrecognized as a causative factor the patients being treated for joint tuberculosis. The most prominent symptoms are joint pain and limitation of motion. The Wassermann reaction is negative in more than fifty per cent. of cases.

In the order of frequency the joints implicated are: ankle (and feet), wrist, hip, elbow and knee. Unlike tuberculosis joint disease due to syphilis is more likely to be multiple than single. While the roentgen ray is a valuable diagnostic aid differential diagnosis between syphilis and tuberculosis cannot always be made. "There is no reliable test for joint syphilis. The Wassermann test, the roentgen ray, the clinical course, the history, must all be considered, and then we are not certain about a diagnosis."

In the treatment of joint syphilis administration of the arsenical preparations followed by small doses of mercury at short intervals, is usually productive of early improvement. The foot should be placed at rest in the meantime.

TRAUMATISM: It would be impossible in this paper to specifically consider the multitude of traumatic agencies which may be responsible for the production of septic arthritis. Willems has done some most commendable work during the recent war in the treatment of purulent arthritis by wide arthrotomy followed by immediate active mobilization. Many other surgeons have also employed his method of treatment in suitable cases with results most encouraging. The following items of technique are abstracted from one of his recent papers.

In purulent arthritis we must first execute an arthrotomy and leave the wound largely open. The expression "immediate active mobilization" must be taken in its literal sense. The mobilization must be active, i. e., made by the patient himself by muscular contractions. The movements ought to reproduce the essential normal motions, that is extension, flexion and rotation. The goal sought to be reached is restoration of physiological function of the articulation so far as may be possible, and in case of the knee this function is walking. Active mobilization cannot be replaced by passive mobilization which does not call into play the muscles of the limb or its nutrition and which tends to restore mobility alone. Mobilization must be immediate, i. e., commenced as soon as the patient awakens from the anesthetic. The patient must not be permitted to rest. The movement must be pushed to the maximum in every direction and be continued, so to speak, uninterruptedly. He needs supervision by someone who is thoroughly familiar with the necessities of the treatment. Active mobilization is not painful in the true sense of the term; it becomes more or less easy according to the extent of the lesions, the courage of the patient and his aptitude in directing his efforts to the muscles which must be contracted, and not wasting his strength in

contracting other muscles than those necessary; movements become easy according as they are repeated.

The following conclusions in regard to the Willems method of treatment seem justified:

(1) All surgical methods of draining the knee joint in suppurative arthritis have certain drawbacks:

(2) The Willems method in suppurative arthritis produces free drainage of pus, promotes circulation of synovial fluid with maximum power of resistance, and stimulates blood supply to the joint:

(3) The practical requirements of treatment are: (a) free drainage, and (b) active movement:

(4) Reports have shown that in about fifty per cent. of the cases treated a useful mobile joint has been obtained:

(5) The Willems method should not be employed if delayed until the fulminating stage of suppurative arthritis has been reached:

In my opinion the Willems method of treatment is indicated only in purulent arthritis when the patient is seen in the early stages, i. e., within the first ten days. Delayed treatment will certainly be productive of disastrous results. This class of cases may become extremely serious even when thorough and continuous drainage has been established. Fortunately in civil practice purulent arthritis occurs with comparative infrequency.

Deformity, stiffness and pain sometimes follow in all types of knee joint infection. The usual resulting deformities are: flexion and subluxation which can usually be corrected by forcible stretching, traction, the application of heat, massage, passive and active motion, in the order named. A light convalescent brace is usually indicated. I cannot too strongly emphasize the benefit to be derived from the application of heat, followed by intelligent massage employed at frequent intervals. Contrast baths, so termed by Jones, cause rapid contraction and dilatation of the small bloodvessels, and when followed by massage and active motion constitute a most efficacious procedure.

Gill admits that the diagnosis of septic arthritis of the knee following gunshot wounds is often difficult, especially where there are septic wounds in other situations. The diagnosis rests upon: (a) rising temperature, (b) high pulse rate, (c) increase in joint distension, and (d) aspiration and examination of fluid should always be practiced before operation. A favorable prognosis in gunshot wounds of the knee depends upon: (a) early immobilization and rest, (b) early removal of shell fragments within the joint.

Cofield says the results achieved in the recent war, in treating infected wounds of the knee by disinfection and immediate closure, have been the source of much surprise and satisfaction. The following conditions, however, are necessary to obtain favorable results:

(1) Operation must be performed early before spread of infection and disorganization of joint structures have occurred:

(2) Thorough lavage of infected and contaminated areas followed by primary closure of the joint capsule is essential:

(3) Foreign bodies must not be allowed to remain within the joint cavity:

(4) When the drainage is used it should extend to the capsule but not into the joint cavity:

(5) Immobilization of the joint must be secured by adequate mechanical fixation.

It is important that the diagnosis of suppurative arthritis be made early. Every joint showing evidence of inflammation and effusion should be aspirated for diagnostic purposes, and the aspirated fluid examined cytologically as well as bacteriologically.

The author makes an incision one and a half to two inches long parallel to the inner or outer border of the patella extending into the joint cavity, which is then thoroughly flushed for fifteen or twenty minutes with 1:15,000 mercuric chloride solution, using a gravity syringe with rubber tip. The objects sought to be attained by arthrotomy and irrigation of the joint cavity are:

(1) Relief of the intra-articular tension:

(2) Removal of necrotic material which acts as a culture medium within the joint cavity:

(3) The cleansing and disinfecting action on the synovia which aids it materially in regaining normal function and renewing its fight against injection.

The capsule is closed with catgut sutures and if a drain is used it is placed outside the synovial membrane to take care of the extra-capsular infection. The wound is closed in layers and the joint immobilized preferably by plaster of Paris spica. Massage, application of heat, active and passive motion often hasten recovery. Periarticular adhesions are separated by manipulations under anesthesia. Intra-articular adhesions are gradually corrected by suitable mechanical appliances.

Monsarret reviews thirty-eight cases of infected wounds of the knee joint. Of twenty-five patients treated within four days after injury, eighteen recovered without amputation; four recovered after

amputation; three died; recovery of seventy-two per cent. without amputation. Of thirteen admitted the fifth day or later, four recovered without amputation; three after amputation; six died; recovery of thirty per cent. without amputation. Of twenty-five surviving without amputation, joint function was preserved in thirteen, i. e., there was a greater or lesser range of voluntary motion. Of these three were admitted the day following the wound; four the second day; five the third day; and one the seventh day. These figures indicate the urgency of early operative treatment in infected knee joint wounds.

In early infections which have not disorganized the joint, the following operative treatment is indorsed by Monsarret: (a) excision of the wound (or wounds) including those of the capsular and synovial membrane, (b) evacuation of effusion, (c) removal of foreign bodies and detached bone fragments, (d) transverse incision into the joint above the patella, (e) either no sutures or catgut suture of the excised wounds passing through synovial membrane only—no drainage material entering the joint, (f) fixation with extension and elevation of of limb to angle of forty-five degrees at hip joint.

When the joint injury is complicated by fracture primary resection may be entertained if stability of the joint is otherwise doubtful. When patients subjected to arthrotomy continue to exhibit signs of active infection secondary amputation should be considered; no lesser procedure is likely to be successful; delay in amputating beyond the third day is likely to be dangerous. Amputation is advisable if the joint infection is complicated by serious bone injury, also if the joint damage is complicated by injury to the femoral or popliteal artery, or by section of internal or external popliteal nerves.

Mouchet and Pamart have been able to follow and observe the functional results in fifty-four cases of arthrotomy of the knee. Six gave excellent results; fifteen were very good, i. e., complete extension, and flexion reaching ninety per cent.; fourteen were fair, flexion being less than right angle and extension not equal to normal; nineteen were poor. Their statistics, therefore, show thirty-nine per cent. of good results; twenty-five per cent. fair; thirty-five per cent. incomplete with more or less ankylosis.

Churchman advocates treating septic arthritis of the knee joint by lavage of joint cavity and staining with gentian violet. In one case joint infection complicated compound comminuted patellar fracture; when the patient was admitted twenty days after injury purulent arthritis (staphylococcus aureus) had developed. Treatment was instituted according to the method mentioned, and the author remarks: "The result, however, was a complete cure of the septic arthritis; and we were subsequently able to suture the fractured patells—which healed by first intention as though no infection had previously been present—and finally to give the patient a normal leg."

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FOREIGN BODIES IN THE EAR AND AIR PASSAGES.

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The presence of foreign bodies in the eye, ear, nose and throat gives rise to experiences which are not always pleasant to the busy doctor, but which are often encountered by him. The majority of these foreign body cases are seen first by the family physician and, as it is not always desirable and may even be impossible for him to refer to the specialist, it becomes necessary for him to assume the management of them. As these cases often occasion a great deal of alarm in the patients and their solicitous friends and relatives, the doctor's method of treating them will reflect a great deal of credit upon him if they are properly managed or, if his efforts to give relief result in failure, they may bring him some unpleasant notoriety. The expenditure of a small amount of money for equipment and a moderate degree of experience in its use will enable the general practitioner to care for the majority of these cases as successfully as could the specialist.

During the summer months it is not unusual to find insects lodged in the auditory canal. This accident, though not dangerous as a rule, causes the patient a great deal of distress from the sensation produced by the insect's changing positions. I have never seen any real harm ensue from the presence of an insect in the ear except in a case in which an ixode or "dog tick" had fastened itself upon the drum membrane, setting up a painful myringitis which lasted ten days or more. Insects are very

easily removed by first instiling a five per cent. solution of chloroform in glycerine into the ear. This anesthetizes the intruder, after which its removal by syringing with warm water is easily accomplished.

Frequently children push foreign substances into the ears and their removal is not always an easy matter, especially if the child is intractable. By directing a stream of water into the ear, the foreign body can usually be washed out. This should not be used if the substance is a cotton seed or bean, for should the first attempt be unsuccessful, the bean or seed will swell, entirely filling the canal. In these cases a speculum should be inserted and a lacrimal probe, bent so as to form a small hook, should be gently pushed past the intruding particle, then turned so as to engage it, after which it is drawn out, bringing the foreign body with it. I have used this method in several cases, always with the desired result. There was sent to me not long ago a boy twelve years old who had pushed a pebble into his ear for the purpose of relieving an earache. The stone completely filled the lumen of the canal, which was greatly swollen and was bleeding from unsuccessful attempts at removal, and it was only after a half hour of persistence and persuasion that I succeeded in getting past it a No. 1 Bowman's probe, previously bent. In turning the improvised hook, a twinge of pain caused the patient to jerk his head away, which resutled in the removal of the pebble. In this case a mastoid inflammation would have resulted if the pebble had not been removed when it was, as a previous suppurative condition of the ear existed.

In cases where foreign bodies could not be grasped by forceps or where the lumen of the canal was entirely filled, preventing the insertion of a hook behind them, they have been removed in this very ingenious manner: A speculum was inserted and a match previously dipped in glue which is just about to "set," is placed against the foreign body and allowed to rest on the speculum for several minutes. It is then withdrawn, bringing the foreign body with it. This is applicable only to cases in which the canal and foreign body are dry. Manipulations in the ear should be very gently performed and should be attempted only under a reflected light. Care should be taken not to wound the membrana tympani by the instrument used or to rupture it by pushing the foreign substance against it.

Cases of foreign bodies in the nose are of frequent occurrence but fortunately their presence causes the patient more inconvenience and annoyance than immediate danger. If their removal is delayed too long, however, a suppurative condition from erosion of opposing surfaces is apt to be set up, which may extend to the sinuses or the infection may follow up the eustachian tubes and invade the tympanic cavity. These cases are usually found in children whose faculty for experimentation is great. I have seen only two cases in adults, one being in a hysterical girl, the foreign substance being placed in the nose presumably to excite notice which would occasion the sympathy of a relative. Their removal is simple. The child should be placed in the lap of an assistant who is strong enough to overcome its struggles. A speculum should be introduced and with a reflected light, the substance should be located and grasped with forceps if possible. Buttons and similar substances are not readily engaged by the forceps. In these cases, a small hook can be passed over the foreign body and it can them be readily drawn out. Some surgeons advocate pushing the foreign body back into the throat, but efforts to do this frequently wedge it under the turbinals and, should it be pushed back, there is danger of its dropping into the larynx.

In this climate it is not unusual for the nose to be invaded with maggots or "screw worms." This is a grave condition and one which calls for immediate and radical treatment, as a number of deaths have occurred in neglected cases. They may be confined to one side or may be generally distributed throughout the fleshy portion of the nose and may even invade the sinuses. The diagnosis is easy, as the parasites are blown from the nose during the patient's frantic efforts to obtain relief. The treatment which, if applied in time, is specific, consists of ten per cent. chloroform in alcohol, syringed into the nose. This should be done hourly until all evidence of the existence of maggots disappears.

There is no more distressing condition nor one which calls for more prompt or heroic treatment than that of the foreign body in the larynx, trachea or bronchus. The size of the offending substance seems not to influence materially the distress of the patient. A small body moving back and forth in a bronchus may cause the most violent respiratory spasms. The patient's appearance is usually an alarming one. He struggles for breath, the face is livid and the eyes bulge from their sockets. The patient either dies immediately or the anesthesia from suffocation relaxes the spasm which recurs after a short period. The foreign body may sometimes be removed with the finger. If it happens to

be in the larynx, pounding the patient on the back may help him in his efforts at expulsion. Shaking him violently with his head downward may be tried. The physician must not be too persistent in these attempts, and some kind of an opening in the larynx or trachea must be made as soon as possible to preserve the patient's life. The larynx is easily gotten into and the rudest operation is preferable to a dead patient. If there is no relief from a laryngotomy a tracheotomy should be performed.

DANGERS, FAILURES AND DIFFICULTIES IN FOREIGN BODY BRONCHOSCOPY; A NEW INSTRUMENT FOR THEIR ELIMINATION.

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Failures in bronchoscopy for foreign bodies may arise from one or a combination of the following reasons:

1. Inexperience in the use of the required instruments.

2. Lack of mechanical skill and ability, and of familiarity with the appearance and anatomy of the bronchial tree, as seen through a tube.

3. Failure to take the time before the attempt, to ascertain, as far as possible, the size and nature of the body to be removed, its exact location, and the length of time of its existence in the bronchus or elsewhere.

4. The difficulty in trying to see through a tube with a lumen necessarily small, with a forceps carrier wobbling about within it.

5. Both hands are necessarily employed with the instruments which are now available, one to hold the tube, the other to manipulate the forceps. This requires harmonious action, which necessitates much practice.

6. After entering the trachea or bronchi with the forceps which we have selected, we often find that it will not grasp the object; we then withdraw it to hunt for another to make the attempt. This requires time and thus often jeopardizes the life of the patient.

7. If a tube is used with the light within at the distal end, this light often becomes obscured by mucus, blood, etc., or the forceps carrier covering it and darkening the field. If a tube is used with the light reflected from without, at the proximal end, this is not only cumbersome, but we are working all the time between the light and the foreign body to be removed, thus constantly darkening the field of work by shadows.

8. Pushing the object further down the bronchi, due to the failure of the forceps to successfully pass the object, because lack of room between it and the bronchial wall; or the operator, after repeated failures, growing desperate, begins to blindly, fish and grab, hoping by some miraculous way to obtain success, other than through patience and skill.

9. Crushing the objects, leaving particles too small to be removed, to set up inflammation. This is quite a frequent occurrence in cases of foreign objects, of vegetable composition, such as the peanut, beans, etc.

I believe the above named causes of failures constitute the principal ones. The first three can be remedied by practice and patience for they lie altogether within the individual efforts of the operator alone. The rest of the difficulties in a great measure, are practically eliminated, at least in the majority of cases, in the instrument herein described. It presents the following features:

1. A combined bronchoscope and forceps so constructed that it will grasp practically any object of any shape and any size that may find its way into the trachea or bronchi, doing away, in the majority of cases, with the use of forceps of many and various shapes and sizes, which are used through the barrel.

2. Vision is had at all times, whether the forceps is closed, being opened or open, as there is no instrumentation through the barrel.

3. There can be no shadows cast upon the object on the field of operation or within the barrel.

4. It will grasp and hold almost any object, whether hard and round like a glass ball, or a soft substance like the peanut, for it does not depend upon the same principle as other forceps. It has only one thin jaw which passes over the object, and closes up the tube behind and, by its life-like motion, it works objects up to the barrel and, if small enough, into the barrel.

5. It is easy to tell when arriving at the object to be removed, as the forcep can be lifted up and down by the trigger-like motion of the index finger and the body thus seen to move. In other words, we feel our way.

6. There is much less danger of driving the foreign body further down into the deeper bronchi, as there is only one thin forceps blade, instead of two, to pass the object, and it is parallel to the wall of the bronchus.

7. Impacted bodies can be worked loose and the process watched while it is being done, by a simple up and down motion of the forceps blades without

disturbing the relation of the forceps blade to the end of the barrel or the object.

8. If secretions too thick and tenaceous to be drawn through the suction tube get in the way obscuring the view, they may be pushed aside with the forceps blade.

9. Abscesses with small openings into the lumen of the trachea or bronchi may be opened and enlarged, allowing pent up secretions to escape.

10. While the bronchoscope is being withdrawn, with the foreign body within its grasp, it can be seen whether or not it remains within the grasp until fully withdrawn. This is not possible with the forceps which have to be used through the barrel. Often a foreign body has been lost during the withdrawal.

11. By regulating the friction control screw at the head, just sufficient tension can be obtained, not to crush soft bodies of vegetable composition, such as peanuts and beans. I consider this one of the most valuable features. An extra strong grasp can be obtained by the process being reversed. This feature can also be controlled by the thumb control, without disturbing the screw.

12. Granulating tissue can be curetted away where the object has become embedded in it. The shape and size of the forceps together with its double motion makes it an excellent curette, when needed, and it is always there, ready.

13. Unless the secretions are exceptionally thick and tenaceous, it is impossible to obscure the light, due to the mechanical arrangement of the light and the drainage tube. The opening of the drainage tube into the barrel is in front and at the apex of the light bulb, and the secretion is taken up before it reaches the light. Every part of the tube can be instantly taken apart for cleaning and sterilization.

14. It requires only one hand to operate.

15. If occasion should arise where the operator should choose to use forceps or hooks, they can be employed in the usual way, as the above added features have not decreased the lumen of the standard size bronchoscope, neither have they increased the size of the tube.

The above features, apply equally well to esophogoscopy.

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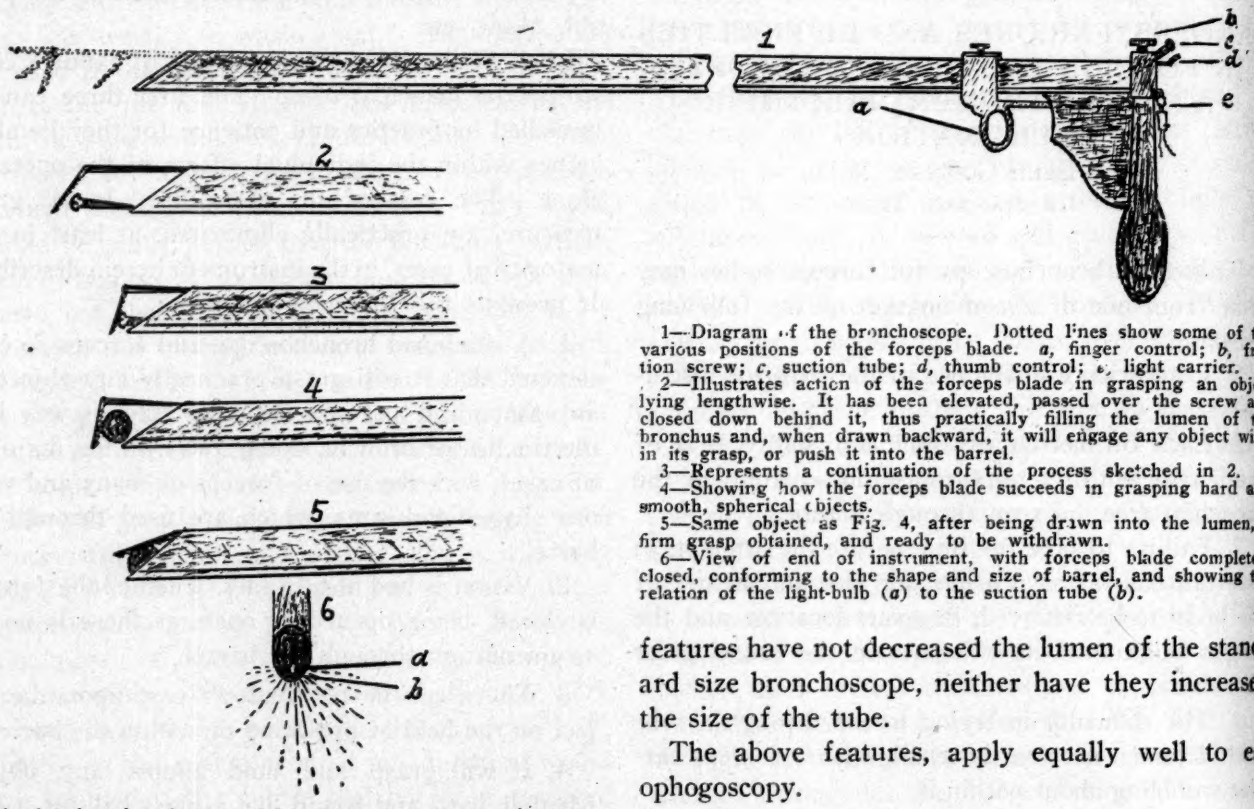

1—Diagram of the bronchoscope. Dotted lines show some of the various positions of the forceps blade. *a*, finger control; *b*, friction screw; *c*, suction tube; *d*, thumb control; *e*, light carrier.
2—Illustrates action of the forceps blade in grasping an object lying lengthwise. It has been elevated, passed over the screw and closed down behind it, thus practically filling the lumen of the bronchus and, when drawn backward, it will engage any object within its grasp, or push it into the barrel.
3—Represents a continuation of the process sketched in 2.
4—Showing how the forceps blade succeeds in grasping hard and smooth, spherical objects.
5—Same object as Fig. 4, after being drawn into the lumen, a firm grasp obtained, and ready to be withdrawn.
6—View of end of instrument, with forceps blade completely closed, conforming to the shape and size of barrel, and showing the relation of the light-bulb (*a*) to the suction tube (*b*).

HINTS TO WRITERS

Many a diffuse and ineffective speaker is a concise and effective writer. One means of attaining that desirable result may be described. When the subject is selected, write or dictate everything that may be in the mind or that may occur as pertinent to it. Then do three things. First, select a definite title or a clear definite text. Write it in clear large words; set it up before you on your desk; take your paper, a good blue pencil and mercilessly cut out everything that does not conform with the text. Ability to "follow the text" is one of the highest attributes of the human mind. Second, go over the various paragraphs that remain and arrange them in logical order. Third, go over what is then left and study each important word and select synonyms that will best express the thought in your mind.—*N. Y. State Journal of Medicine.*

THE OPERATIVE TREATMENT OF THE TOXEMIAS OF PREGNANCY.

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It is not my purpose to enter into a discussion of the ethics of therapeutic abortion, but it will not be amiss to restate some pertinent facts in connection therewith. It is an unquestioned biologic fact that life exists from the time of conception, which will in time, if nothing adverse intervenes, result in a child born with the inalienable rights of a human being. This being so, anyone who interferes with the life of a fetus in utero assumes a tremendous responsibility. He assumes the rôles of all the officials of a court—prosecuting attorney, jury, judge and executioner, and no one individual is wise enough to take the entire responsibility.

Before resorting to therapeutic abortion for the toxemia of early pregnancy, the rights of the unborn child should be considered just as sacredly as the rights of the mother. There is no excuse, nor is it within the realm of reason, to advise or perform a therapeutic abortion without a thorough scientific study of the case with able and conscientious consultants. If it is so evident, without study, that the case is one that demands the operation, the chances are that the operation will not avail in saving the life of the woman. Fortunately the cases are rare which demand this procedure and they are becoming progressively less and less frequent. This, I believe, is the result of a number of factors; women are placing themselves under the care of their medical advisers much earlier in their pregnancies than formerly; the physician more fully realizes his responsibilities and has discarded the plan of watchful waiting for one of preparedness; the rights of the unborn child are better understood and appreciated; social service and prenatal work have been and are tremendous powers for the better care of the pregnant woman—and better care means early recognition of impending danger and consequently early treatment to forestall the disaster.

Very few cases of toxemia if recognized early, with prompt and efficient treatment, will reach a condition requiring therapeutic abortion. I venture the assertion that when the time comes that all women will be under medical supervision from the beginning of their pregnancy, this will be one of the rarest operations in obstetrics. Women of the better class are being educated rapidly to the need and advisability of early medical supervision of their pregnancy. Unfortunately the majority of expectant mothers are not in a position financially or intellectually to obtain this ideal. The only way in which they can be effectually reached is by intelligent social service in connection with pre-natal clinics.

It is the prime duty of all men and women engaged in obstetric activities to give this aim their most earnest support and encouragement. I trust that the time is not far off when it will be regarded as a badge of inefficiency for any man in charge of the obstetric department of a hospital, not to have in connection therewith a well-organized prenatal clinic.

It may have been noted in speaking of emptying the uterus for toxemia of early pregnancy that the term "therapeutic abortion" has been invariably used. It seems hardly necessary to dignify any other method by discussing it. The only possible excuse for performing an abdominal section in these cases would be the need of rapidly emptying the uterus. The primary risk of the operation is much greater and the danger in future child-bearing is incalculable. I would not mention this subject were it not for the fact that there is a growing tendency for the general surgeon to invade the field of obstetrics. I have no quarrel with the surgeon doing obstetrics, providing he is an obstetrician. It should be remembered, however, that only a very minor part of the obstetric art consists of surgery. Any man well trained in surgery can probably perform the few operations required in obstetrics, just as well as the trained obstetrician but this ability does not make him an obstetrician. I am reliably informed that in several hospitals in Philadelphia the obstetricians on service are mere midwives; they are permitted to attend only the normal cases, and all cases requiring any surgical procedure must be referred to the surgical staff. This includes anything from a lacerated perineum to Cesarean section. Such an arrangement of course is inimical to the best interests of the hospital, medical education and the advancement and dissemination of obstetric science.

A discussion of the surgical treatment of the toxemia of pregnancy can hardly be separated from a discussion of the treatment as a whole. I believe that while surgery still has a place in the treatment of toxemia, it is a comparatively small one. There is sufficient evidence at hand to prove that the most rapid emptying of the uterus possible, in every case of convulsions, is not justified. Theoretically all and practically most cases of toxemia are cured as the result of the termination of pregnancy. It is equally a well known fact that the toxemia does not

immediately and miraculously end with the termination of pregnancy. Many of them apparently do but it is not because the uterus is emptied, but because that most efficacious method of elimination, "blood letting" has been practiced at the same time.

My personal feeling is that any case of toxemia is benefited by removing the cause of the toxemia, namely the fetus. The time and method of accomplishing this cannot be solved by laying down hard and fast rules but must be solved by meeting the indications in the individual case and by applying the measures which will best meet the indications. In a general way it must be realized that a toxemic woman is not a good surgical risk and nothing should be done to add jeopardy to the case by ill-advised surgery. A good rule to follow is to make haste slowly.

I am firmly of the opinion that the universal application of Cesarean section in the treatment of these cases is unjustified. Cesarean section has an important place in the treatment but not a very wide one. We must not lose sight of the fact that active elimination treatment with the method of Stroganov has given far better results than any other treatment. Emptying of the uterus by the means which exposes the woman to the least danger is an important adjunct to the treatment; simple rupture of the membranes with the induction of labor will meet this indication in the majority of cases. If this is true what can justify the universal application of Cesarean section? My feeling is that Cesarean section is applicable only when this promises to be the least dangerous method to the woman in the individual case or in those cases of fulminant toxemia when immediate emptying of the uterus can be tried as a "dernier resort." Cesarean section carries with it a mortality even in the best selected cases, with an augmented one in the poorer surgical risks such as toxemia, and in the dangers of rapid and unsatisfactory preparation of the patient for operation. Again we must not lose sight of the fact that once a toxemic woman does not mean always a toxemic woman; but that once a Cesareanized woman does mean always a Cesareanized woman. The last statement is not to be accepted literally but is said in this way simply to emphasize the fact that a Cesarean section does add a definite and very serious danger to the woman in subsequent pregnancies. The scar will no doubt stand the strain of subsequent pregnancies and labor in the majority of cases but the case reports of rupture of the uterus at the line of scar are common enough to make us realize that this operation should not be performed unless there is a definite indication for it. A thorough knowledge of the obstetric art and science is necessary before one can adequately recognize the indications.

Vaginal Cesarean section, at one time much in vogue, has a limited field in the surgery of toxemia of pregnancy. In the multiparous woman until the seventh month of pregnancy it is probably a safer operation than abdominal section. In the primiparous woman and in the woman beyond the seventh month, however, the technical difficulties and the time consumed in the performance of it makes it an unsatisfactory procedure.

Pubiotomy and symphyseotomy as operations of choice have no place in the treatment of this condition. Decapsulation of the kidneys has been advocated but the suggestion is too bizarre to receive serious consideration.

Forceps delivery and extraction by version are used only to meet the indications which necessitate their use in the ordinary cases of labor independent of eclampsia or as a means of terminating labor quickly providing they do not add undue risk to the woman. There is nothing to be gained by saving an hour in the labor and spending an hour repairing the traumatism occasioned and subjecting the woman to the added danger of wound infection.

I take it that it is not necessary to discuss the fact that craniotomy on the living child is not a justifiable operation in the treatment of the toxemia of late pregnancy.

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TRADITION IN MEDICINE.

We are reminded of the many statements in medical works having little or no foundation in fact, but which are accepted as gospel truth and handed down without investigation from one writer to another. What, and how many, these statements are, especially with regard to therapeutic practices, heaven only knows and we would dread to have disclosed all at once. Disclosed they will be in time, but that time seems needlessly slow and long drawn out. If medical authors could somehow be held responsible for their statements the casting out of dead and harmful timber from their works would be accelerated. As it is, the amount of matter that bears the stamp of the author's own experience, and therefore originality, is, in most books, and must be in any large work, exceeding small. The great bulk of his matter is a repetition of what has stood, possibly for centuries, unexamined, for truth.—*N. Y. Medical Journal.*

GOLDEN RULES IN ABDOMINAL SURGERY

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The diagnosis of abdominal surgical affections is at best the accomplishment of one skilled in the interpretation of medical and surgical physical signs and symptoms, and when there is added to this an understanding of surgical pathology, it at once becomes apparent that such diagnostic skill is not the possession of the mere novice or the occasional operator. We emphasize these requirements, not that they are unessential in surgery in other regions, but especially because abdominal surgery is surrounded by many pitfalls into which the unwary may find that his endeavors, instead of leading to a pinnacle, are unconsciously drifting him toward the edge of a precipice.

When one has the classical, cardinal symptoms as guiding posts and the symptomatology conforms with the printed page of the text-book, the diagnosis becomes a matter of routine; but alas! too often the inroads of disease follow no definite, logical course and it is here where the skill of the diagnostician asserts itself. And all too frequently, let it be remarked, from lack of a proper understanding of this important region of the body, many untimely and unnecessary operations are performed, augmenting without any reason whatsoever, a formidable array of mortality statistics.

Besides the physical signs, the surgeon has resort to instrumental aids, the roentgen rays, laboratory methods, etc., and while the various rays, illuminants, the microscope, etc., are regarded as courts of last resort, it is the peculiar experience of most surgeons that too much dependence must not be placed upon these so-called irrefutable proofs that often, instead of acting as corollaries to the surgeon's interpretation, offer themselves as snares and delusions. I recall one instance where a number of shadowgraphs in the hands of an excellent roentgenologist were interpreted as those of a series of gall stones, and subsequent operation failed to reveal any such condition. Again, the microscope is by no means an infallible diagnostic aid, and while every means should be employed to strengthen the diagnosis, absolute dependence should not be placed upon those refinements as indisputable authority.

I wish also to call attention to the unnecessary and often dangerous delay occasioned by this or that physician or specialist, examining this or that secretion, making a special or detailed study of the symptoms, or postponing the patient's entrance into the hospital or delaying seeking the surgeon's opinion at the patient's home until much valuable time is lost. Such delay not infrequently conduces to a fatal termination. Let the surgeon study the case at the earliest possible moment. Unlike many others, when in doubt, instead of consuming valuable time, unraveling what may baffle the diagnostician, I recommend an exploratory incision, as the quickest and safest procedure. Let it be remembered that the "educated" finger is to the surgeon quite as important as the trained eye or the gifted mind, for the deft and skilled touch can often reveal to the operator what would ordinarily require much cutting, unnecessary hemorrhage, perhaps shock and disarrangement of the viscera. As was previously remarked, the most painstaking tests and examinations often fail too reveal the true condition that the surgeon encounters; therefore, it behooves the surgeon to be reasonably sure of being able to meet any of these serious conditions in this complex cavity. It is a part of wisdom to have at hand a variety of instruments adaptable to different operations; thus, the gastro-enterostomy armamentarium should be in close proximity, for while the ingenious surgeon may form his clamps by the employment of wooden tongue depressors, the use of such emergency devices is not to be encouraged.

To revert again for the moment to delay in these important surgical cases, too often the condition is complicated by a peritonitis, masking the primary affection and making the prognosis extremely grave. It would be a cruel interrogation to force a confession from the attending physician, but not rarely are we informed that the patient has been thoroughly purged, which has resulted in encouraging a diffusion of the peritonitis. It seems almost superfluous to caution against the use of morphia or other opiate for the relief of pain, thus effacing the sensitive area and in that way obscuring the diagnosis.

It is an incontrovertible axiom that the unmistakable and readily arrived-at diagnosis of serious affections in the abdominal cavity is of bad omen, and the reason is not far to seek. For any disease, especially the stealthy inroads of malignancy, asserts its fatal import when the skill of the therapeutist no longer avails and surgical intervention only hastens the oncoming of the final issue. Epigrammatically, the statement is happily put, "In the earlier stages of surgical lesions the diagnosis is the major part of the surgery; the operation is minor. In the later stages of the surgical disease, the diag-

nosis becomes the minor part, operative surgery, the major, and the results, both immediate and permanent, are worse."

Of course, the surgeon is often at a disadvantage in not seeing the disease at any early stage. Necessarily the history of the patient and the progress of the malady are to him as a closed book. He needs employ his best judgment, which at times, though emanating from one who is both an operator and a surgical philosopher, may, nevertheless, be faulty. Resort must necessarily be made to laboratory methods, but these are not, as previously stated, to be regarded at all times as infallible proof. The Wassermann test for syphilis is often the sole means of arriving at what appears to be an impossible diagnosis; where the mecurials, iodides, salvarsan and other medicaments stay the hand of the surgeon and are successful in effecting a cure. Tuberculin tests and tests for tuberculosis are invaluable.

The urinary examination is important for the discovery among other things, of kidney function, diacetic acid and acetone; the presence of these substances, in the absence of diabetes and of kidney disease, indicates that the patient's nutrition is below par and that his system needs rehabilitation, when possible, before operation.

A complete blood count with a differential count of the leucocytes, should always be a preliminary step to operation. It must not be forgotten, however, that at times even a high leucocytosis fails to show the presence of pus. Skilled surgeons are prone to regard the existence of pus rather by the tactile sense than by the differentiation of the hemotologist.

The roentgenogram is an adjunct of special value to the operator; but this serious criticism has been justly made—that to be of value, the *x*-ray plate and its interpretation, and the pathological condition found at the seat of operation, should be searchingly compared; that the roentgenologist seldom sees the operation, and the surgeon performing the operation, as a rule, only indifferently regards the *x*-ray picture; and that both are making unnecessary mistakes by neglecting the observations of the other.

The routine examination of the feces is usually neglected. Its importance at once becomes apparent in consideration of parasites to explain the presence of anemia, the existence of free blood, the presence or absence of bile, etc.

Nor are these all. The surgeon who would excell in abdominal work must be a good physician as well. The surgeon who is a good diagnostician on abdominal diseases must be a good diagnostician of other regions of the body. Were the errors in diagnosis listed, wherein medical entities and even those in remoter parts of the body were mistaken for abdominal affections of a surgical nature, they would form an imposing chapter in the annals of unfortunate surgery. In illustration of this we quote the following from an interesting paper by Riesman.* "I was asked," he writes, "by a surgeon to see a man upon whom he intended to operate for cancer of the stomach. The chief symptoms were anorexia, vomiting, a painful epigastric tumor and great prostration. Examination revealed, it is true, a pronounced fullness of the epigastrium and the sensation of a mass, but more careful exploration showed that this was the left lobe of the liver, the enlargement of which was found to be due to mitral stenosis."

The same author makes mention of an old, alcoholic, kyphotic patient,** who suffered severe pain in the right epigastric region, and where the existence of a peritonitis was strongly suspected. The case was so much involved and the diagnosis so doubtful that an operation was not regarded by surgeons as justifiable. At autopsy an abscess was found, underlying the liver; the source of this abscess at first was undiscoverable, but after careful dissection it was found connected with the outbreaking of the old tuberculous focus of infection.

The number of pitfalls for the unwary in the domain of abdominal surgery is legion. Space will permit of reference to three major affections that are all too frequently confused from a diagnostic standpoint and whose true nature is at times only to be found at the operation table; we cite, appendicitis of the acute variety, cholelithiasis, and ulcer of the stomach.

Taking the second of these first, namely, gallstone disease, we have (although not, as a rule, so regarded) a protean malady that manifests itself in a dozen different ways, eleven of the twelve times of these manifestations often being diagnosed as a widely different affection. It is not uncommon for a surgeon to be gravely in doubt at the physician's diagnosis of cholelithiasis. Often the surgeon calls upon the medical practitioner to corroborate the surgical diagnosis. Frequently they concur in their opinions and both are in error. The pains in gallstones are not infrequently found upon the left side, and in those cases are usually caused by adhesions. So often is cholelithiasis diagnosed as "chronic dyspepsia," "nervous indigestion," and gastralgia, that there are not a few intelligent physicians who assert

*David Riesman, *Pennsylvania Medical Journal*, August, 1914.
**Ibid.

that ulcer of the stomach is a sequence, and in some instances a patient is hurriedly rushed to a hospital with a "stomachic perforation," because the victim is in a state of collapse; it should be remembered that there is less shock in biliary colic and the liver dullness is not obliterated.

A high position of the appendix makes the differentiation, at times, between appendicitis and gallstone disease, a task of nice appreciation. In appendicitis, however, the point of tenderness is a little lower than in cholelithiasis. Rigidity of the right rectus muscle, or, for that matter, of both recti, is not pathonogmonic of any particular abdominal affection; rather do many surgeons attach importance to the high leucocytosis. The differentiation between these two conditions on the one hand, and gastric or duodenal ulcer on the other, especially when the gastric ulcer is situated upon the posterior wall of the stomach, with absence of hematemesis, is often a matter of extreme difficulty. In the presence of classical symptoms, i. e., pain immediately after the ingestion of food, vomiting and hemorrhage, the diagnosis offers no difficulty, for gastric hemorrhage means just one of three conditions: gastric ulcer, gastric cancer, or hepatic cirrhosis.

The object of this brief communication, at the outset, was simply to record some of the guiding points that are indispensable in a study of abdominal conditions, and the avenues of approach that are endorsed by some of the best thinkers in this field of endeavor. The few words added in relation to a disease or two, are introduced rather as illustrations than as discourses on the differentiation of these important maladies. Were the paper at all discursive, we would inscribe a manuscript of almost impossible proportions, for such a paper would offer discussion of such surgical subjects as diseases of the pancreas and the spleen, chronic intestinal obstruction, typhoid perforation, gynecological affections, etc. In conclusion, the desirability of *early* study of these cases by the surgeon cannot be overemphasized.

218 SOUTH FIFTEENTH STREET.

INFARCT OF THE SPLEEN.

Infarct of the spleen should be suspected when in the presence of infection or following an accident or violent exercise there is sudden sharp pain referred to the point of the left shoulder, with tenderness on deep palpation of the splenic region. This with an enlarged and palpable spleen makes the diagnosis reasonably certain.—JOHN B. DEAVER in the *N. Y. Medical Journal.*

A PLEA FOR MORE SIMPLE TECHNIQUE IN HERNIOPLASTY.

J. W. KENNEDY, M.D., F.A.C.S.,
PHILADELPHIA, PA.

Probably never before in the same period of time have so many hernioplasties been performed as during the World War. In proportion to the large number of operations for the condition there have been brought forth numerous modifications of well known procedures. We certainly were not wanting in variety of procedures for hernioplasty which had been established by earnest workers. I do not deprecate originality; it is the essence of progress. I admire the heretic but I am unable to see real progress in multiplicity of procedures with only minor differences of technique to the great confusion of beginners. I welcome all modifications of surgical technique that make for simplicity and thoroughness.

In this discussion I am not trying to put my stamp upon any new procedure, nor do I claim any step which may not have been taken by other operators. My aim is to simplify the procedure in every particular. I regret that it is not my observation that we grow more simple and eliminate unnecessary steps in our surgical procedures; indeed, it would seem quite the reverse. If I am entitled to an expression of thought which I constantly have after seeing most operations, it is that the operators are making their work too difficult through unnecessarily complicated and burdensome technique. Price was a surgical genius because he was a great master of a most simple technique.

I discuss the most usual hernia, namely, oblique inguinal hernia. The indications are two, namely, to treat the sac and to close the opening produced by the hernia. There has been too much said about the cord and too much done with it. I am sure that in over ninety per cent. of hernioplasties it is not necessary to even see the cord. I never could see the necessity of a useless dissection of structual planes and then immediately re-suturing them to their former positions and relations. Never sever a structure in order that it may be sutured; such is without surgical philosophy.

Much is said about the internal ring in most hernioplasties. It is the place at which a large per cent. of the recurrences take place; or if not at the internal ring, just external thereto. Early in my work I saw the virtue of effacing as thoroughly as possible this weak point of the internal ring and that interval just external to the ring which lies between the outer third of Poupart's ligament and

the lower border of the conjoined tendon. I made this discovery by attempting to find a weak point in my surgery after suturing the conjoined tendon to Poupart's ligament. It was apparent to me when I made pressure with the end of the finger external to the location of the internal ring, that there existed a considerable space of little protection by either muscular or fascial planes; I therefore inserted a couple of re-enforcing sutures external to the location of the internal ring. I have learned subsequently to taking such step, that Dr. Ferguson has made similar observations and has written most intelligently on this weak point. I am sure he is entitled to any priority he cares to claim, but he is bigger than priorities and has given us the very best hernoplasty that adorns the text-books. I endorse his procedure in practically every particular and probably differ from him only in the treatment of the sac. The internal ring and its immediate neighborhood being the part of usual recurrence, any step to eradicate this weakness is indicated. It is for this reason I have never been able to endorse any of those procedures which bring the cord above the conjoined tendon and thus have a tendency to perpetuate the internal ring and that canal which is necessarily produced when the cord is brought through those structures for which we depend for future relief of the condition. It may be impossible to efface the internal ring as it is formed by the fascia of the transversalis muscle, but by keeping the cord below the conjoined tendon we have at least closed any canal which would naturally lead from the internal ring through the muscular planes, which canal and its immediate neighborhood are the predisposing points of recurrence.

A good deal is said about suturing of the structures near the internal ring around the cord and it is confusing to beginners as to just how snugly such suture may be placed without congesting or strangulating the cord. If the cord is not brought through and placed above the conjoined tendon as we advise, there is no need for such indefinite step. Always eliminate indefinite steps in surgery.

As I have said, in probably ninety per cent. of hernioplasties for oblique inguinal hernia, I do not even see the cord, therefore I never see a swollen testicle after the operation. As far as my memory goes at this moment, I have no recollection of any enlarged testicle following our herniotomies. In those cases in which the cord is adherent to the sac, in most instances the vas is found on the inside of the sac, other structures of the cord on the outside. Do not do unnecessary manipulation to find the extremity of the sac, but early incise it at any point and insert a finger to better define the location of sac and facilitate the dissection of structures from it. Do not attempt to assemble the structures, the cord is simply depressed into its fatty bed as the sutures are introduced in the manner described below. We ligate the sac by transfixing it at as high a point as possible, and amputate it if of any size and, after dissecting the peritoneum for at least an inch beneath the muscles of the conjoined tendon, the ligated sac is transposed and anchored one inch above the free margin of the conjoined tendon. If one simply anchor the sac by transfixing the muscle with one end of the ligature and then tie with the other or free end, one has only pulled the stump of the sac one-half the distance from the free margin of the conjoined tendon to the point of transfixion; but if both ends of the ligature have been used to transfix the muscle at a high point, one truly transposes the stump to the full distance of point of transfixion. I have felt this is important as it most thoroughly effaces that funnel-like depression which must exist after ligation of the sac and dropping it back without transposition or anchorage. If the sac has been transposed and anchored one inch above the margin of the conjoined tendon, any return of pressure at the mouth of the sac is directed against solid structures one inch above the canal.

A most necessary step in the operation is a very thorough exposure of the fibers of Poupart's ligament and the attached fibers of the incised external oblique in practically the full length of the ligament. It is important that no fatty structures intervene between the conjoined tendon and Poupart's ligament to prevent a strong union. If operators had been mindful of this principle of not permitting fatty structures to intervene between muscle and fascia in the suture of abdominal incisions, it would not have been necessary for them to have abandoned the through-and-through suture, which is the most rapid, thorough and stable of all methods of closing the abdominal cavity. I use no absorbable ligatures in any of my work; all buried ligatures or sutures are of silk. The conjoined tendon and Poupart's ligament are united by four or five silk sutures; the sutures are introduced by depressing the cord and surrounding fatty structures by the back of the finger, while a good bite of the lower fibers of the incised external oblique and all of the shelving roof of Poupart's ligament are included in the introduction of the suture. The needle is then carried over the finger which is depressing the cord and the surrounding fatty structures and is passed under the conjoined tendon including at

least three-fourths of an inch of that structure.

The sutures are tied gently with just sufficient tension to approximate the structures. There should not be sufficient tension on these sutures to be harmful to the nerves if such are included. The less amount of tissue included in the bite of any suture, the more apt one is to harm the structures included. The great amount of tissue we include in our sutures uniting the conjoined tendon to Poupart's ligament and the gentle tying prevents tissue crush or injury. In our eagerness to close any opening we are inclined to tie too tightly. The lower margin of the conjoined tendon should be free of fat and the fibers sufficiently exposed to permit early and firm union to the ligament. Our sutures extend from the external ring to one or two sutures external to the location of the internal ring. The external ring is left just sufficiently patent to permit passage of the cord, possibly large enough to permit a dimpling by the end of the small finger. The operation is finished by uniting the incised fibers of the external oblique by a few interrupted sutures of silk, and the skin is closed by interrupted sutures of silkworm-gut. Interrupted sutures are drainage sutures and less apt to give trouble than the subcutaneous. There is no point in the entire procedure which demands any fine point of judgment as to technique. There are too many insanities of uncertainties in surgical teachings. Nothing can be more simple than this technique. The cord is not handled or even seen and yet it is impossible to harm it if depressed by the finger as aforesaid.

The nerves are not isolated and not harmed by including a good amount of tissue in suture inclusion and tying very gently.

The internal ring about which a great deal is said of definite technique, is not even dealt with by eliminating the canal which is made when the cord is brought through structures from the internal ring. If this operation can be made more simple, I shall be a follower of such technique.

THE WORKINGMAN'S HERNIA.

When a hernia arises during industrial service, regardless of the etiology, we contend it should be relieved by truss, or repaired surgically, and the affected individual restored to industry. The practical economic problem arises—at whose expense should trusses be fitted, and herniotomies performed? The company's surgeon can do the herniotomy and radically cure the disease in less time than is wasted in legal quibbles over "who is responsible?"—CHARLES A. LAUFFER in *The Journal of Industrial Hygiene.*

APPENDICITIS, HERNIA AND ANO-RECTAL DISEASES OF THE YOUNG SOLDIER.*

W. H. AXTELL, A. M., M. D.,
BELLINGHAM, WASHINGTON.

One of the most astonishing revelations of the draft for the Army was the great number of the physically and mentally defective youths. Until the draft law was put into full operation comparatively little note was made of the physical and mental defects of the American youth. It was only the exigencies of war that awakened the public to the recollections of the past.

For more than a quarter of a century the U. S. Public Health Service, Anti-Tuberculosis Society, American Social Hygiene Association, U. S. Department of Labor for Child Welfare, and others, had been pursuing a vigorous campaign of education for the uplift and betterment of American children, but the American public, so interested in property and dollars, did not grasp the lesson.

It was perfectly natural for the condition not to be fully realized in time of peace because in each community only a comparatively few cases existed; whereas, when segregated by the draft, the number of seriously defectives was overwhelming and appalling.

One of the most astonishing things to me was the great number of young men who were afflicted with, and extremely susceptible to, intestinal and ano-rectal diseases. The next most astonishing thing was the absolute indifference of the medical profession in the Army, amounting almost to utter contempt for these apparently minor defects. This applies more particularly to the reserve officers from civil life, who went into the Army with visions of becoming great Army surgeons. Nothing except prospects for major operations appealed to them. It did not apply so much to the regular Army officers because they were fully aware of the great number of non-effectives made by these apparently simple ailments. I had then and have now the greatest admiration for the Medical Corps of the Regular Army, as it existed at the beginning of the World War.

With a Medical Corps sufficient only for an Army of 55,000 men, these self-sacrificing men, within a period of less than twelve months, converted 33,000 civilian doctors into the most effective medical military organization ever known to history. By rights and justice, all these Regular Corps men were entitled to serve at the seat of war, but

*Read before the American Proctologic Society at its annual meeting in Memphis, Tenn., April 22-23, 1920.

being good soldiers, they sacrificed, possibly, the last opportunity to put into actual practice the work for which a life time of training had prepared them. They remained in the United States, many of them, with unceasing toil and energy, to convert these 33,000 civilian physicians, of all types and characters, into a most effective organization. While there may have existed, and still does exist, some dissatisfaction among the reserve officers, yet taken as a whole the work accomplished by the Regular Army Medical Corps will always stand in history as one of the greatest accomplishments of the war.

As a result of the exigencies of the war thousands of defective youths were accepted for service only later to become wards of the Government. At one place where I was stationed for a period of five days for the observation of the number of intestinal and ano-rectal diseases there passed in the regular routine under my observation 472 cases. These are, therefore, not selected cases.

Of this number there were the following:

1. Hernia ..... 46 cases
   (a) Existed prior to enlistment .... 23 cases
   (b) Acquired in the service ..... 15 cases
   (c) Recurrent ..... 8 cases

All were inguinal and were operated upon in the Army with 17½ per cent. of failures. Of the eight recurrent cases, four were operated upon the second time; three, the third time, and one, the fourth time, with the hernia recurring the fifth time the abdominal wall completely relaxed.

2. Hemorrhoids ..... 8 cases
   (a) Existed prior to enlistment ..... 1 case
   (b) Acquired in the service ..... 7 cases

All these were operated upon with three cases followed by fissure; one by incontinence; one by fistula; two by partial stricture.

3. Appendicitis ..... 9 cases
   (a) Acquired in the service ..... 9 cases

All were operated upon with post-operative hernia in four out of the nine cases.

4. Fistula-in-Ano ..... 5 cases
   (a) Existed prior to service ..... 3 cases
   (b) Acquired in the service ..... 2 cases

All were successfully operated upon.

5. Fissure-in-Ano ..... 1 case
   (a) Acquired in service.

Successfully operated upon.

6. Prolapsus-Recti (traumatic).
   (a) Acquired in the service (wounded).

All of these cases excepting eight of the appendicitis cases and the fistula and fissure cases, and five of hemorrhoid cases, are permanent partial non-effectives for the rest of their lives.

If we figure the cost in dollars and cents to the Government, as based upon the actual compensation drawn by these patients according to the Compensation Act, we have some astounding figures. Taking the average life of an individual as thirty years, we have:—

1. Hernias—Permanent partial disability:		
(a) 38 cases 20%	$273,600	
(b) 4 cases 25%	36,000	
(c) 3 cases 40%	43,200	
(d) 1 case 50%	18,000	
Total for hernias		$370,800
2. Hemorrhoids—Permanent partial disability:		
(a) 1 case 50%	$ 18,000	
(b) 2 cases 25%	18,000	
Total for hemorrhoids		36,000
3. Appendicitis—Permanent partial disability:		
(a) Post-operative hernia 15%	5,400	
Total for appendicitis.....		5,400
4. Prolapsus Recti (non-operable)—Permanent partial disability:		
(a) One case, 75%	27,000	
Total prolapsus recti		27,000
Grand total		$439,200

This enormous sum for disabilities in so small a number of cases does not include the expense of subsequent treatment, hospital care, appliances, temporary total disability while in the hospital, nor does it include the increased compensation that may accrue from an increase of the disabilities already existing. This added cost in many cases exceeds the compensation.

Causes:—The first and primary cause of these deficiencies in the young men in civil life had its inception at birth. In other words, the health of children heretofore had been made a secondary matter in the affairs of life. The exigencies of warfare demand physical soundness and endurance rather than mental acumen, hence, the primary object is the most perfect development of the body.

In civil life no universal, systematic or compulsory arrangement had ever been instituted for the development of the physical as there had been of the mental condition of the youth of the land. In our homes, our public schools and our business world generally, the main end sought was material success, and if the human part of the machinery failed

it was discarded as so much worn-out machinery. As a result of this the irregular habits of living, the dissipation of social life, etc., a generation of young men grew up with bodies of non-vigorous and non-resisting tissues, and when these young men from all stations and conditions of life were inducted into the service and subjected to rigorous military training, they fell prey to the infirmities of neglect.

The disabilities above-mentioned developed so rapidly that the hospitals were taxed to capacity and the Medical Corps was overwhelmed. In the poorly-nourished bodies of devitalized tissues the very processes of making soldiers operated alike in producing these disabilities and of causing subsequent operative failure. As a matter of fact recurrent hernia and failure of operation in the ano-rectal and other cases became so great that operations were prohibited excepting in emergency cases. However, these failures were not so much the fault of the operations, operator or technic, but were due to the extreme demands of military necessity that every available man be on duty.

The next most important cause of failure was the too early return to duty, contrary to the better judgment of the operator. Had the Medical Corps had in the beginning the same sense of their own power which they had six months after, the number of failures from a surgical standpoint would not have been so great.

Another cause of failure, especially in the hernia cases, was the "fad" that the operation wound should be left undisturbed for from eight to ten days after the operation. This mode of procedure led to many cases of pressure necrosis, causing a subsequent opening of the wound.

Another cause for failure arose from depending upon the untrained and unskilled attendant for post-operative care and dressings, which, also, was an unavoidable military necessity in the early period of the war.

Another important cause of failure of operation was the ill-fitting uniform the men were compelled to wear. It is well known that the soldiers were made to fit the uniform rather than the uniform to fit the soldier.

Another cause of failure was the use of the Army —and the accoutrement—belts. There were very few men in the early part of training who understood the proper use, and the proper manner of wearing these belts, in order to avoid injury to the abdomen and abdominal organs; this is particularly true in regard to recurrent hernia, intestinal obstruction and enteroptosis.

Comments:—Most of the bad results here enumerated would have been avoidable in civil life where the proper post-operative time for recovery could have been had. It would have been much better had these men been discarded in the beginning rather than later on, and incidentally it would have been less expensive.

I have seen many a nervous wreck buffeted about from organization to organization and called slackers, neurasthenics, psychopathic-neurotics, when an examination revealed a small fissure, ulcer or thrombotic hemorrhoid, which, when relieved, placed the soldier back in the ranks.

The lesson, however, has been taught and hereafter in the Army, the Medical Corps will not be subjected to the whims of any lay or line commanders. Another great lesson is that the 4,000,000 soldiers of the draft Army have been taught personal hygiene and sanitation, the value of regular habits and how to keep vigorous. If the lessons taught are carried into civil life and if the relatives and friends give the young boys the same attentive care and encouragement, and manifest the same interest as they did when entering the Army, and they keep in force even partially the lessons learned, there should be at least two generations of vigorous manhood.

ETHER PNEUMONIA.

Akron, Ohio, June 24, 1920.

To the Editor, AMERICAN JOURNAL OF SURGERY:

In his article on "Abdominal Hernia" in the June issue of the JOURNAL, Dr. Leigh F. Watson says: "Local anesthesia removes the danger from ether pneumonia." It is strange that at this stage in the development of medicine we still meet those who speak of *ether pneumonia*. Post-operative pneumonia occurs as often and as severely after local anesthesia as after general. Yet whoever speaks of a *novocaine pneumonia*, a *chloroform pneumonia* or a *nitrous oxide pneumonia? Ether pneumonia* does not exist any more than does *laudable pus!*

If a patient who had no pneumonia before operation develops it afterward the cause was *chilling* during or after the operation. In Dayton, Ohio, five successive cases were traced to a too cold recovery room. Too much attention in operating rooms is paid to sterilization and too little to ventilation. Too hot a room, too much blanket are usually the cause of pneumonia through subsequent chilling.

I have administered ether and oxygen to patients with single and double pneumonia, without injury. If ether cause pneumonia why did these patients not get worse from it? A. S. MCCORMICK.

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WALTER M. BRICKNER, M.D., F.A.C.S., Editor.

NEW YORK, AUGUST, 1920.

CHRONIC APPENDICITIS.

It seems platitudinous to remark that there is no surgical disease in which the results of operation are more certain and more gratifying than acute appendicitis. The same may be said of the "interval" removal of the appendix that has been the seat of *bona fide* acute attacks. When we turn, however, to the larger group of cases of so-called chronic appendicitis (or what, we regret to say, so many of our writers persist in loosely dubbing "chronic appendix"), we have much less reason to be proud of our results. Indeed, it is notorious among surgeons who have followed any considerable number of cases, that in a very large percentage of operations for "chronic appendicitis" the patient is not at all benefited, even when we include those cases in which the pathologist obligingly finds, *microscopically,* evidence of disease. In a follow-up analysis of 555 ward cases of chronic appendicitis (of which 126 could not be traced), Charles L. Gibson reported in *The American Journal of the Medical Sciences,* May, 1920, that in 102 the results were unsatisfactory!

Many cases of so-called chronic appendicitis are not appendicitis at all; and one should be very slow to make this diagnosis in any case in which there have not been clear-cut and characteristic attacks. We say this with full appreciation that in many instances of true chronic appendicitis there are not any characteristic attacks, that unquestionably some cases with symptoms chiefly in the upper abdomen are due to appendicitis, and that, despite the absence of characteristic anamnesis, a *tentative* diagnosis of chronic appendicitis is often justified and appendicectomy *and abdominal exploration* are then indicated.

The hospital surgeon occupies an embarrassing position with these cases. He has not observed them over a long period and cannot keep them in hospital for that purpose, and, very often, despite his misgivings, he feels that he must "give the patient the benefit of the doubt," especially when, as is the rule, the diagnosis of appendicitis has been made by the referring physician.

It seems reasonably safe to say that every patient who persistently complains of pain, or exhibits tenderness, in the right iliac fossa will sooner or later be told by some physician that he has appendicitis and sooner or later, if he submits, some surgeon will remove his appendix. Nor are the physician and the surgeon the only ones to blame. Far more to be scolded, because they have *no* justification, are those roentgenologists—and they are not few—who boldly assert a diagnosis of "chronic appendix" (they, too, seem to like that sloppy mode of expression), because, noting no other misbehavior in the travels of the barium mixture through the digestive tract, they find a tracing, perhaps more or less irregular, of the lumen of the appendix! We venture to say that the cases of appendicitis that can be diagnosed by roentgenology are few and far between. As an instance in point, a man of thirty had suffered for some years with brief, almost daily, attacks of epigastric pain and vomiting of greenish fluid, usually an hour or so after breakfast. He was carefully observed by a competent gastro-enterologist, who finally came to the conclusion that the case was one of chronic appendicitis. A roentgenologist found a "segmented shadow of the appendix," but no abnormality in the outline or movements of the stomach or intestines; and he had the temerity to conclude his report: "Diagnosis:—Chronic appendicitis." At operation we found the appendix normal but the gall-bladder *and the common bile duct* full of stones.

If a large percentage of cases of "chronic appendicitis" are unrelieved by appendicectomy they are, of course, suffering from or, sometimes, *also* suffering from some other unrecognized disorder. In all cases in which, after anamnestic and diagnostic investigation, operation for suspected chronic

appendicitis is decided upon the surgeon therefore should, as Gibson advises, "make a good-sized incision, and, even if a frankly pathological appendix is found, look for other possible lesions."

Unfortunately, in very many instances neither "a frankly pathological appendix" nor "other lesion" will be found. What is the matter with *these* patients; wherein lies the failure to properly evaluate their complaints and to arrive, if not at a definite diagnosis, at least at a non-surgical indication? The answer, it seems to us, lies sometimes in overlooking some extraperitoneal gross lesion, as, for example, urinary calculus, or locomotor ataxia; but more often the explanation is to be found in the *anamnesis*.

In most of our hospitals the histories are taken by internes who have not learned the importance of allowing the patient to tell his own story in his own way, and who have not the time to listen to the story even if the patient's surroundings or the interne's anamnestic skill encouraged him to tell it *all*. Difficulties are increased where, as in many of Gibson's cases, the patients speak only a foreign tongue. In short, the "history" is all too often merely the patient's replies to stereotyped leading questions. It tells the surgeon that the patient has or has had pain in the right side of the abdomen; that it is or is not related, in time, to eating; that he has or has not vomited, etc. It states his occupation but it makes no inquiry into those occupational postures or movements which might be responsible for his pains. It says that the patient is or is not constipated, but it gives no other clue to his habits of eating, of exercise, of diversion. Of the patient himself, his psyche, his temperament, his present and past troubles (other than "diseases"), it says nothing. It is common knowledge, or ought to be, that abdominal complaints not rarely are the expressions of mental distress—of a neurosis.

Gibson recommends, in his summary, "avoid the neurasthenics of any age or sex." This is sage advice, but we must add that the "neurasthenic" (a term that does not properly apply to all the patients with psychogenic abdominal complaints) can not always be recognized by these hasty, crude, stereotyped hospital histories, nor by two or three days of observation on "hospital rounds," where the surgeon, especially, habitually seeks and emphasizes the objective to the neglect of the subjective! One does not need to be a Freudist to appreciate that by "analyzing" these cases of "chronic appendicitis," that is to say, by quietly, sympathetically and patiently inquiring into the patients' affairs and their habits, vocational and otherwise, he would in many instances arrive at a clearer notion of their disorders. Unfortunately the hospital surgeon himself seldom has the time and often has not the requisite tact for these prolonged, intimate inquiries; and, too, very often they may avail him little. And so there probably will continue to be a considerable, but we hope steadily diminishing, number of cases in which he is led to remove what is, indeed, only a chronic appendix and not at all a chronically diseased appendix.

Surgical Suggestions

The pain of a rupturing tubal pregnancy is sometimes referred to the right hypochondrium and may even radiate therefrom to the right shoulder, thus simulating a gall-stone colic.

Sloughing aponeurosis in an abdominal wound has a characteristic odor that is quite diagnostic. It persists until the slough has been cast out of the wound.

In hernioplasties, especially inguinal, chromicized catgut does not last long enough and non-absorbable sutures give much trouble in the event of infection. Slender kangaroo tendon is the ideal material. Likewise in bone surgery heavy kangaroo tendon sutures are to be preferred to wire.

Fractures through the head of the humerus or the greater tuberosity may advantageously be managed by simple abduction in bed (with a sling from the arm to head of bed) *without any immobilization*. It secures and maintains abduction and minimizes loss of function.

In determining the character of a swelling about the hip remember the occasional occurrence of tuberculosis of the trochanteric bursa. This causes thickening of the walls of the bursa and distension with fluid. It may attain large size and bizarre development, even appearing as a cyst-like growth far from its origin over the trochanter major.

The most common variety of dermoid in the region of the anus is the pilo-nidal or coccygeal cyst. Occasionally, however, dermoid cysts are found in the midline of the perineum; such a one at the anterior commissure of the anus may be mistaken for a hemorrhoid. A skin-lined "fistula" in the midline of the perineum is congenital and leads, usually, to a dermoid cyst.

Progress in Surgery

Selections from Recent Literature.

Edward Bleier, M.D., Abstract Editor.

Bone Grafting of the Fractured Mandible, with an Account of 60 Cases. GILBERT CHUBB, England, *The Lancet,* July 3, 1920.

All but three of the 60 were gunshot fractures and all were operated upon at the Queen's Hospital for Facial Injuries, Sidcup. They are consecutive and unselected cases. In two cases the graft was lost owing to sepis. Erysipelas accounted for one of these and a discharging ear, not noticed prior to operation, apparently accounted for the other. In one case sinus formation resulted in non-union, and the eventual absorption of the graft; this case has since been regrafted. In another case the graft, which extended from molar to molar region, is healthy and the wound soundly healed, but union has not yet occurred at either end. In the remaining 56 cases, 93 per cent. of the series, firm bony union has been obtained. 51 of the cases had edentulous posterior fragments, and in 40 of these the loss of bone involved the region of the angle. In 16 of the latter the loss involved the ascending ramus also.

The graft was obtained from the crest of the ilium in all but the first two cases. This source has several advantages. The size of the graft is practically unlimited. All sclerosed and doubtful bone can, therefore, be freely removed from the jaw fragments. The soft and vascular nature of the iliac crest greatly facilitates the manipulation of the graft and its subsequent union and consolidation. Futhermore, it is possible by varying the position on the crest to obtain a graft of a general curvature suitable to each particular case. There is a complete absence of post-operative disability, even when the anterior superior spine has been removed with the graft. The cases were, as a rule, up and about 14 days after the operation, and in no instance has there been any complaint of the hip.

The aim, in every case, has been to obtain a sound carpentering junction between the graft and the jaw fragments, the bones being so trimmed that they fit end to end with accurate apposition of the largest obtainable areas of exposed vascular bone tissue. In this position they are firmly wired together. This technique was originally adopted in order to control the edentulous fragment and to facilitate early union by accurate and continuous appostion of opposed bone tissue. The technique has the additional advantage that it allows of the early exposure of the graft to the stresses incidental to muscular movement without risk of disturbing the close contact of bone tissue obtained at the time of operation. This early stress is a factor in determining rapid union was only gradually recognised as a result of the impracticability, in the great majority of the cases dealt with, of obtaining rigid post-operative immobilisation by means of splinting. Where no teeth are present on the posterior fragment the rigid splinting of the larger tooth-bearing fragment to the upper jaw does not relieve the grafted area from all muscular stress. Yet it was found that in over 60 per cent. of the successful cases union was of ivory hardness at the end of three to four months. In several of the cases, in which no effective control existed for either fragment from the time of the operation onwards, rapid bony union nevertheless resulted. Therefore the chief role of the dental splint is the maintenance of correct occlusion during the operation. The tendency to lingual deviation of the large fragment can be subsequently prevented by the interlocking of the splint when in closed bite or by means of a flange. In order, however, that early exposure of the grafted mandible to stress may be a factor in determining rapid union, it is important that it shall not involve any disturbance of the opposed bone tissue—that is, the "carpentering" at the time of the operation must be sound.

The technics of the operations, under various conditions, are described in detail and illustrated. Pre-and-post-operative treatment are discussed, and the 60 cases are analyzed.

What this valuable combination chiefly emphasized, by way of underlying principles in technic, is that the graft and jaw fragments were so trimmed as to fit accurately end to end, with the largest obtainable areas of exposed vascular bone tissue held in close contact by firm wiring. *The close apposition results in early bony union, while the firm fixation allows of the bones being subjected at once to some degree of muscular strain without fear of displacement, thus leading to the early consolidation of the primary union.*

Concerning the fate of the free graft, Chubb says: "General opinion is, on the whole, tending towards the view that the free graft remains alive and takes an active osteo-genetic share in the union. The graft, with its thin tables of compact bone, is relatively more transparent in the earlier post-operative radiographs than is the far denser mandible. There is, however, no constant post-operative increase in this relative transparency. On the contrary, successive radiographs show a uniform increase in the opacity of the graft."

Some Prinicples Involved in the Treatment of Empyema. EVARTS A. GRAHAM, St. Louis, *Surgery, Gynecology and Obstetrics.* July, 1920.

The author calls attention to the extensive recent literature on empyema thoracis, which reveals a striking tendency towards standardization of treatment, and a radical departure from the methods in use before the war. Graham was a member of the U. S. Army Empyema Commission. The cardinal principles of the newer therapy are avoidance of a pneumothorax during the acute stage of the disease, early obliteration and sterilization of the cavity, and the maintenance of the nutrition of the patient.

Graham points out a very important and almost universally prevalent misconception as to the mechanism of action of an open pneumothorax. In the normal thorax the mediastinal structures, instead of constituting a more or less rigid partition between the two pleural cavities, are in reality so mobile, that they offer a resistance to pressure equal to only 0.4mm. of mercury. This resistance is therefore negligible from the standpoint of pressure relationships, and the thorax can be considered as one cavity instead of two. Any change in pressure, therefore in one pleural cavity, will manifest itself to the same degree in the other pleural cavity, with the result that both lungs will be about equally compressed. This is proved experimentally. These principles have a very important bearing on the treatment of empyema, especially in the acute stage, before adhesions are formed, and they explain the danger of open thoracotony at this stage. After adhesions have formed and the mediastinum has become somewhat stabilized, the pressure relations are different on the two sides, and open thoracotomy is no longer dangerous to life.

Tidal Irrigations of Wounds. W. H. TAYLOR and N. B. TAYLOR, Guelph, Ontario, *Journal of the American Medical Association,* June 19, 1920.

The tidal irrigations of wounds had its origin in France. The improved apparatus and the technic of its use were developed largely by W. H. Taylor and N. B. Taylor, during the latter part of the war, in Canadian hospitals in England. Reports of cases and descriptions of the method and the appliance were published on various occasions under the caption of "liquid-tight closure." The practicability of tidal irrigation is dependent on liquid-tight closure, which renders possible the copious flushing of wounds without wetting the dressings. The wound is covered by a flexible rubber cap whose brim makes contact circumferentially with the neighboring skin. This ring contact with the skin is water-tight; and the fact of its water-tightness is the sine qua non of this system of treatment. Two tubes leave the top of the cap, the inflow connected with an elevated reservoir and the outflow leading to a waste vessel set below the level of the wound. Each tube communicates with the interior of the cap which, in turn, is continuous with the cavity of the wound. From the reservoir to the waste pail, then, we have a

single "pipe line," the dilated section of which is comprised by the wound and its covering cap. This capcovered wound is capable of containing fluid, even under considerable pressure. Flooding of the wound is effected by closing the outflow and opening the inflow tube. Suction in the wound is brought about by siphonage; this is established by closing the inflow and opening the outflow. Thus positive and negative pressure may be alternated by the manipulation of pinch cocks on these tubes. The rubber cap is seen to distend during positive pressure and to shrink during negative pressure. There is no moisture of the dressings to suggest that the wound beneath is being flooded. Continuous irrigation is never used. The wound is filled and left for a time. It is then emptied and allowed to remain under the influence of negative pressure until refilled from the reservoir. No drainage tubes are used, for the simple reason that the wound itself constitutes, actually, the expanded portion of the conduit leading from the irrigator to the waste vessel, and that continuity of fluid pressure extends into every side track of this conduit, that is to say, into all the ramifications of the wound. For full details of this method, the original article should be consulted. The authors and others have treated more than 400 cases by this method, and the results obtained have exceeded even the expectations which the logic of the procedure seemed to justify. A good proportion of the cases treated were recently infected wounds.

Technic of Operations upon Peripheral Nerves. C. C. COLEMAN, Richmond, Va. *Southern Medical Journal*, June, 1920.

Coleman's paper is based on 132 operations on peripheral nerves, performed at U. S. Army Hospitals 41 and 11. Three types of operation were done: (1.) liberation of the nerve or neurolysis; (2.) suture; (3.) transplantation. Most of the patients were operated upon more than three months after the original injury. Surgical treatment becomes necessary when the evidence of satisfactory regeneration of the nerve cannot be obtained by careful examination of the patient. The injury to the nerve may consist of partial or complete division, stretching, contusion, and incarceration in scar tissue or callus. The site of the injury usually shows a neuromatous enlargement which may often be palpated through the overlying soft tissues. The difficulties in reaching a decision to operate on nerve injuries can be solved only by a knowledge of the anatomic distribution of nerves, an investigation of the motor, sensory, and electrical phenomena, and a familiarity with the normal processes of regeneration.

Liberation is indicated when the nerve is compressed by scar tissue or bound up in callus. It is beneficial only when the interference with nerve function is extra-neural and can not possibly be of help to paralyzed nerves when the neuraxes are destroyed or obstructed by intraneural scar tissue.

Suture is indicated when there is anatomical interruption of the nerve or intraneural obstruction by fibrous tissue without satisfactory signs of regeneration. In preparing a nerve for suture, all scar tissue must be completely removed and the healthy funiculi uncovered by serial sections made with a sharp knife.

Nerve transplantation is indicated when the segments of the divided nerve, after removal of the fibrous ends, can not be approximated without hurtful tension. The autogenous nerve graft taken from a superficial sensory nerve is the best material to fill in a defect in a motor or mixed nerve. The method of Huber by which a cable of several segments of a sensory nerve, generally the musculocutaneous of the leg, is transplanted into the defect, seems best to fulfill the histologic requirements for regeneration.

The general technic of operations upon peripheral nerves must necessarily vary from that of surgery upon structures of coarser function. The operation is often long and tedious by reason of dense scar tissue. Scars over the incision for the exposure of the nerve should be excised, because the healing of such scars is frequently very unsatisfactory.

A tourniquet is unnecessary and may cause paralysis of a healthy nerve and tendency to post-operative hematoma. Drainage is avoided by ligation of every oozing vessel. Dissection should be with a sharp knife as a rule, although in a case of the ulnar just beneath the elbow joint one blade of a pair of scissors may be thrust into the groove, and by putting the nerve in slight tension, exposure may be made more rapidly. Dissections through scar tissue may be facilitated by continuous saline irrigation, but the uncontrollable slop outweighs its advantages. Local anesthesia may be used in the shorter operations and is helpful in the study of nerve topography, but as a rule ether is to be preferred.

Physiopathic Paralysis of the Hand and its Causation. R. G. ABERCROMBIE, England, *British Medical Journal*, June 5, 1920.

Abercrombie reviews the lesion first decribed and named by Babinski.

Without apparent adequate cause, a wound of the upper limb is followed by loss of power in the hand of the affected side. Neither the situation nor character of the wound bears any relation to the grade of the subsequent paresis; none of the symptoms correspond to the territory of any particular nerve.

The short muscles of the hand and the long flexors are chiefly affected. The muscles are sometimes limp, more often spasmodically contracted, so that the hand assumes various postures; frequently the palm is hollowed and the fingers imbricated one over the other, to form the so-called "accoucheur's hand." The paralysis is usually not complete; feeble movements can be performed in a tremulous or "waggling" manner. The thumb often escapes, so that the hand can meet the needs of a hospital patient or pensioner, though inadequate for any useful purpose.

The sensory symptoms are limited to an uncertain and varying hypesthesia and contortions of apparent pain on the performance of passive movements. The patients are unduly apprehensive of pain, and are devoid of the normal impluse towards recovery.

The affected muscles waste, often extremely; they exhibit mechanical hypereexcitability; slight electrical changes occur but the reaction of degeneration is not present. The skin, subcutaneous tissue, and bones share in the atrophy, so that the whole hand appears attentuated and smaller than its fellow. The skin is salmon-pink or cherry-red in color, with a satin-like sheen around the roots of the nails. Trophic sores do not occur. The nails are curved and longitudinally grooved, sometimes greatly deformed; beneath their free margin a small fold of skin is often visible.

Profuse sweating of the palm is a common and striking feature; and it is of special interest that this symptom is directly influencel by emotion. If the affected hand be unexpectedly seized and examined, the palm may be found normal or slightly moist; if now the hand be made the subject of discourse to bystanders, beads of sweat form upon its palmar surface, until finally a sheet of moisture is formed over the whole palm. The palm of the opposite hand may also become moist, but not to anything like the same extent; meanwhile the rest of the body shows no abnormal sweating. Localized flushing of the affected hand may sometimes be similarly produced.

The emotional strain of war causes an increased suggestibility, with consequent liability to hysterical paralysis; the same emotional strain may also induce a disturbance of the sympathetic, the ciculatory and trophic effects of which show themselves especially in the tissues of the paralysed member, partly on account of its immobility and partly owing to the localizing influence of the patient's emotions. This two-fold effect of hysterical paralysis with severe trophic changes constitutes the physiopathic condition.

Psychological treatment by means of explanation, strong encouragement and re-education is the essence of success in dealing with these cases. The removal of the morbid mental state cures the paralysis and simultaneously eliminates the scource of the perverted sympathetic impulses which are the cause of the trophic changes, the disappearance of the latter being greatly facilitated by movement and physical therapeutics. Recovery is almost invariable, and relapse is rare. Treatment is rendered noticeably easier by the patient's demobilization from the army.

A Splint for the Treatment of Stiff Fingers. MAJOR F. G. A. ULRICH, New Zealand. *The Journal of Orthopedic Surgery,* June, 1920.

The splint, which is called the Finger Flexion Splint, is used solely to gain flexion at the metacarpophalangeal and inter-phalangeal joints of patients whose fingers are stiff in an extended or partly extended position and whose wrist joints may be normal or can at least be dorsi-flexed to a useful degree as nearly as possible approximating the position of physiological rest.

The splint is made of 3/16" milled steel and is fashioned to fit across the palm of the hand opposite the metacarpal necks, curved to retain the arch of the hand as much as possible. It is bent along the ulnar and radial borders of the hand and forearm, passing between the thumb and index finger and kinked forwards at the wrist to follow the contour of the dorsi-flexed wrist joint. The palmer bar of the splint is neatly fitted with rubber tubing but probably any soft tissue would do. The ends of the splint are hooked and terminate about three-fourths of distance up the forearm. Usually a roughened metal strut is welded to the limbs of splint near the hooked ends to facilitate firm incorporation in plaster of Paris.

The *principle* of the splint is retention of wrist in a constant degree of dorsi-flexion while flexion of fingers is gained by tape and glue applied to their dorsal surfaces. The writer first used this method at Alder Hey almost two years ago.

The splint is retained in position by plaster of Paris applied to the upper part of forearm and elbow—elbow joint being flexed to 90°.

The plaster and glue having dried for 24 hours flexion of fingers may be commenced by noosing the 4 tapes through the flexion loop as firmly as patient can bear it.

The flexion is divided into two stages:

1. Flexion of metacarpo-phalangeal and first inter-phalangeal joints. This is continued until pads of fingers approximate the thenar and hypothenar eminences.

2. Flexion of first and second inter-phalangeal joints. This is gained by passing the tapes between the palmer bar and the palm and applying traction as before. The mild pressure of tapes on base of hand has never caused any inconvenience.

Some advantages claimed for this splint are:

1. Constant degree of dorsi-flexion.
2. Flexion is painless, continuous and easily graduated in the individual fingers.
3. Flexion is divided into two stages.
4. No impediment to circulation of fingers by encircling bands.
5. Accessibility of hand and greater part of forearm for massage and electric treatment without removal of the splint.

This last advantage is of greater importance and has made it possible to use the splint in all cases whether traumatic, ischaemic, or functional.

Ingrown Toenails. J. V. BECELAERE, Detroit, (Editorial) *Detroit Medical Journal,* May, 1920.

Many local applications have been attempted: iodine tincture, subsulphate of iron, powdered alum, etc. The most efficient plan of treatment, however, and the only one calculated to end the trouble in shortest time and with the least amount of pain and expense, is ablation—total or partial—of the offending nail. Under observance of strictly aseptic precautions the entire dorsal aspect of the terminal phalanx is thoroughly frozen. This is best effected through the use of ethylene choride, sprayed from a distance of about two inches over the entire surface until it suddenly flashes white, and a few seconds longer to insure sufficient penetration, the operation proper being done at once, before normal circulation has time to become re-established.

Partial ablation is effected by means of stout shears, the pointed blade of which is run lengthwise under the nail, at least one-third from the offending edge, and spitting it down to the matrix. Evulsion of the detached segment is best effected with a strong artery forceps. This mode of procedure allows the entire inflammatory process to die out (for this time at least) but nothing short of thorough destruction of the corresponding portion of matrix will insure freedom from recurrence, and is best effected by the use of the thermo-or-galvano-cautery.

Total ablation is but an extension of the same procedure by which the entire nail is removed in a similar manner, either at once, or after splitting it in halves as previously stated. Here again nothing short of thorough destruction of the ungual matrix will insure against ultimate recurrence of the same trouble under similar circumstances. After-treatment consists preferably in the use of starch-poultices for the first few days to be spent in bed and, later on, a slight adhesive strapping of the affected phalanx.

By this plan patients are allowed to resume their usual avocation after two or three days at most, and at the cost of little time and minimal expense.

Surgery of Congenital Hypertrophic Stenosis of the Pylorus. RICHARD WARREN, London, *The Lancet,* June 26, 1920.

Warren reports twelve cases treated surgically by gastrojejeunostomy and by Ramstedt's operation. On careful examination of available statistics he believes that most cases of hypertrophic stenosis of the pylorus die if treated medically. On the contrary, surgical measures, including cases which have become debilitated by overlong expectant treatment have cured 60%, whether by gastro-enterostomy or Ramstedt's operation. Where the diagnosis is reasonably certain from the finding of a small tumor, presumably the pylorus, with the other signs of pyloric obstruction, operation should be undertaken without delay, and should be regarded as the normal treatment. Where the diagnosis is not absolutely certain, medical measures may be undertaken for a few days while careful and frequent examinations are made for the pyloric tumor. If projectile vomiting persists, feces remain abnormal, and the weight decreases, a laparotomy should be performed, and the pylorus hooked up through a small incision and examined. Although there is not much difference in the recovery percentage between the cases treated by gastro-enterostomy, and those treated by the Ramstedt operation, the latter will probably be the operation of choice in the future, on account of its less severe character. If employed early in all cases, the results could probably be considerably improved. There is a great disturbance of metabolism in these infants, rendering the after-treatment a problem in feeding to be solved in each case individually.

The Duodenal Tube in Diagnosis and Treatment of Gall Bladder and Biliary Disease. SAMUEL WEISS, New York, *Western Medical Times,* June, 1920.

Weiss discusses the newer methods of examining duodenal contents, before and after the injection of magnesium sulphate into the duodenum. He describes the procedure after the introduction of the tube as follows: after the bile is obtained the patient is put in the fully recumbent position with the head directed toward the edge of the bed, the tubing is allowed to remain suspended over the side of the bed in such a way that by siphon action there will be a tendency toward the steady flow of bile. After the flow has commenced and the first part is discarded, three culture tubes are used in the following way; after obtaining some bile in the first culture tube it is set aside for bacteriologic, cytologic and chemical examination. We now introduce, by means of a sterile syringe from a sterile container 25 to 50 c.c. of a sterile, 25 per cent. solution of magnesium sulphate, and start gentle aspiration. After several minutes bile begins to flow and when the color is quite yellow, the material already collected is poured into a sterile container and further drainage is continued.

The first bile collected is probably from the bile ducts, as it is lighter yellow and more transparent and less mucoid. Later the bile aspirated becomes darker and more concentrated, and in normal cases remains transparent. This bile is stored up in the gallbladder. On further aspiration this dark bile changes to a lighter yellow, thin and usually transparent bile which flows intermittently, and is believed to be freshly secreted bile from the liver.

Through this method one is able to collect separately bile from the different parts of the biliary system, and study each sample as to its various ingredients.

1. In choledochitis, the bile first collected is more viscid, with much flaky mucus and is usually turbid. It contains quite some pus cells, epithelial cells and at times red blood corpuscles. Culturing may show pathogenic organisms.

2. In cholecystitis without inflammation of the ducts, the bile is usually normal, and on culture no pathogenic organisms are found. The second bile shows quite a change; it is more viscid, turbid, and flaky, and stringy mucus is found in abundance. Pus cells, red blood cells and desquamated epithelium are quite frequent. Cultures show pathogenic organisms. The color varies from light golden yellow to dark molasses yellow and turbid. At times aspiration is difficult.

3. In the presence of gall stones the findings are the same as in cholecystitis with the addition of a sediment resembling lime.

In reference to topical treatment, the author believes that a new field has been opened in the treatment of biliary disease. He believes that local applications of magnesium sulphate are efficacious in producing a discharge of biliary calculo. Local antiseptic may also be used.

Ruptured Malarial Spleen: Splenectomy: Recovery. CYRIL A. RAISON, England. *British Medical Journal*, June 19, 1920.

Raison reports a most unusual case of recovery following splenectony for traumatic rupture of the malarial spleen. The patient was a Macedonian, aged 56, and presented on admission the picture of ruptured spleen. The operation was performed under local anesthesia and gas-and-oxygen. There was a large amount of free blood in the peritoneal cavity. The spleen was greatly enlarged, the anterior surface of its capsule was almost completely raised from the matrix, and showed an irregular tear about four inches long. There were many adhesions, especially to the diaphragm, which caused considerable difficulty in delivering the spleen and clamping the pedicle. The spleen was found to be 13 inches long, 6 inches wide and weighed three pounds and two ounces. The previously reported cases of rupture of malarial spleens in the presence of adhesions have been practically uniformly fatal. This patient made a complete recovery.

Notes on an Operation for Large Midline Ventral Hernia. GEORGE CHIENE, Edinburgh. *Edinburgh Medical Journal*, June, 1920.

In order to overcome the tension encountered in the repair of large midline ventral herniae, Chiene has devised an operation which eliminates entirely the lateral pull of the abdominal muscles. It is this tension which makes repair so difficult and which accounts for the frequency of recurrences. In addition this new operation has the advantage of superimposing another layer of sutures in the midline where the repair is effected.

The hernial contents having been dealt with in the usual way and the fibrous edges of the hernial opening having been pared, so as to demonstrate the various abdominal layers, the skin and subcutaneous tissue are freely undermined as far as, or just beyond, the outer border of the rectus muscle on either side; two vertical incisions are then made at this point parallel with the outer border of the rectus muscle through the aponeurosis of the external oblique. Those incisions should extend at least an inch beyond the upper and lower limits of the hernial opening. Secondary horizontal incisions are then made at the upper and lower ends of the vertical incisions. By dissection towards the middle line two flaps of fascia are formed with their hinges about the middle of the anterior sheath of the rectus muscle.

The vertical incisions through the aponeurosis of the external oblique muscles at once diminish the tension or lateral pull of the oblique muscles. When the edges of the wound are drawn together two large ovoid gaps are formed in the external oblique, through which the internal oblique is exposed to view. After the various layers of the abdominal wall have been sutured the fascial flaps formed from the external oblique overlying the outer border of the rectus muscle are turned inwards, overlapped, and sutured in the middle line, which is thus considerably strenghtened.

The ovoid gaps in the external oblique cause no untoward post-operative symptoms or complications.

The Radical Cure of Femoral Hernia. (*La Cure Radicale de la Hernie Crurale*). F. M. CADENAT, France, *Revue de Chirugie*, 1920, No. 2.

Cadenet describes the Hartmann operation which he has performed successfully in 100 cases. The essential features of this operation are: 1. The inguino-crural approach; 2, longitudinal division of Poupart's ligament; 3, closing off the femoral ring by a double curtain, consisting of the conjoined muscle and the external oblique, which are sutured to Cooper's ligament. The advantages of the inguino-crural incision are, that it permits the high ligation of the sac, and the exposure of Cooper's ligament from below. It thus combines the virtues of the inguinal and crural incisions. The division of Poupart's ligament longitudinally is necessary to the complete exposure of Cooper's ligament and its suture to the two layers mentioned.

The technique is outlined. An 8 cm. incision is made. The first part of the incision is parallel to the groin and extends to the neck of the hernia; it is then continued downwards into the thigh directly over the hernia. The aponeurosis of the external oblique is incised vertically at the border of the femoral vein for a distance of 2 cm. to Poupart's ligament. This incision is then continued, dividing Poupart's ligament longitudinally, parallel to its cause as far posterior as possible. The sac and its contents are treated in the usual fashion, ligating as high as possible. Cooper's ligament is now easily exposed by retracting upwards the divided upper edge of Poupart's ligament, and the conjoined muscle. The repair is effected by suturing these two layers to Cooper's ligament thereby screening off the crural opening.

Nephrotomy in Eclamptic Anuria. (*La Nephrotomie dans L'Anurie Eclamptique*). MAURICE GERARD, Lille, France. *Journal d'Urologie*, Vol. 9, No. 2.

In a rather complete article on this subject Gerard presents the pathology of eclamptic anuria, reviews the indications for surgical intervention as presented by various authorities on the subject, and compares the operations of decapsulation and nephrotomy with drainage of the renal pelvis. He reports a cure by the latter operation in a case of complete anuria. Although the indications for surgical interference in eclampsia have not been definitely established, the idea is generally prevalent that anuria in these cases is definite justification for operation. From a comparison of experimental and clinical results the author believes that nephrotomy and drainage has a better effect than simple decapsulation. A study of statistics from various scources (Albrecht, Lance, Poten) show that in eclampsia the mortality after decapsulation is greater than after simple medical treatment. In cases of anuria the comparison is still more unfavorable. Gerard has been able to collect only four cases of nephrotomy and drainage for anuria, to which he adds five of his own. The mortality was 40%, but the favorable results were striking. The anesthesia should be brief, preferably nitrous oxide. The author feels warranted in offering the following conclusions: 1. In cases of eclamptic anuria, after the usual medical treatment, evacuation of the uterus, and repeated phlebotomies have failed, surgical treatment is indicated. 2. The operation should consist of nephrotomy and drainage of the renal pelvis, with decapsulation of the same kidney. Only one kidney should be attacked.

Icterus in Ectopic Gestation. EDGAR H. NORRIS, St. Paul, Minn. *Surgery, Gynecology and Obstetrics* July, 1920.

Norris calls attention to an unusual symptom of ectopic gestation, which may be of great importance in differential diagnosis. He reports four of his own cases of tubal pregnancy in which icterus was present. The following principles are elaborated.

1. Jaundice is a not uncommon symptom of ectopic gestation.

2. The presence of jaundice is of great importance, and may frequently be the symptom which determines the differential diagnosis.

3. The jaundice in these cases is probably due the absorption of blood-derived pigments produced by the hemolysis of extravasated blood.

4. The blood serum often contains considerable quantities of blood pigments (hemoglobin, hematoidin, hematin, hemochromogen).

5. In the progress of the differential diagnosis, the blood serum should be studied both grossly and with the aid of the spectroscope.

Cesarean Section under Local Anesthesia Combined with Morphine and Scopolamine Narcosis. FREDERICK C. IRVING, Boston, *Boston Medical and Surgical Journal*, June 3, 1920.

The author believes that Cesarean section offers the best solution in cardiac disease where decompensation has occurred, because it is attended by a minimum of shock, and because by its employment the stress and strain of labor are avoided. It also gives an opportunity to sterilize the patient, which is usually advisable. The chief objection to cesarean section is, that more frequently than after most laparotomies it may be followed by distention, and by dilatation of the stomach, both of which may prove disastrous to an already embarrassed heart. These complications may be avoided by attention to three details. 1. The use of the low abdominal incision entirely below the umbilicus. In this way the stomach and intestines do not come into the field of operation at any time. 2. The close approximation of the uterus to the abdominal wall by the hands of two assistants who exert firm pressure exteriorly against the patient's flanks until the uterine contents have been entirely evacuated. In this way the soiling of the peritoneal cavity by liquor amnii and blood is avoided. 3. The avoidance of gauze packs, either wet or dry. The forcing of gauze between the parietal peritoneum and the uterus causes considerable irritation. Local anesthesia eliminates most of the dangers of general and spinal anesthesia. One-sixth gr. of morphin and 1/200 gr. scopolamine are given subcutaneously. This is repeated at 40 minute intervals until the patient is quiet and dozing. Three doses are usually necessary. The operating room should be kept absolutely quiet and no talking permitted. The operation and local anesthesia are conducted along the usual lines.

The author concludes:

(1) Cesarean section under local anesthesia combined with morphine and scopolamine narcosis is a useful and successful method of delivery in some of the graver complications of pregnancy. Among these are cardiac disease where one or more attacks of decompensation have occurred, diabetes, nephritis and cardiorenal disease, pulmonary tuberculosis and bronchial asthma.

(2) In general, it finds its application in those cases where we wish to avoid the pain and physical exertion of labor, the possible shock of an operative pelvic delivery, and the danger of general anesthetic.

(3) Plenty of time must be allowed for both the general medication and the local anesthetic to act.

(4) Deliberate operating, with studious avoidance of roughness, is essential to success.

The Interpretation and Clinical Significance of Uterine Hemorrhage. EMIL NOVAK, Baltimore. *Medical Record*, July 10, 1920.

The logical basis for the study of uterine hemorrhage is the study of normal menstruation.

In many cases uterine bleeding is explainable along purely anatomic lines, especially in the case of such destructive lesions as cancer.

In perhaps the largest group of cases—those in which there exist one or more of such non-destructive lesions as adnexitis, myoma, uterine displacement, etc., both mechanical and functional factors play a role, the latter having to do most frequently with a disordered ovarian function. In the case of ectopic pregnancy, still another factor must be borne in mind—that exerted by the death of the embryo.

The third group, comprising the cases of uterine hemorrhage spoken of clincally as functional, is dependent altogether upon a disordered ovarian function. The hyperplasia of the endometrium so frequently found in these cases is secondary to this underlying ovarian endocrinopathy.

Radium Treatment of Chronic Leucorrhea. ARTHUR H. CURTIS. *Journal of the American Medical Association*, June 19, 1920.

In a series of forty-six cases the patients were subjected to a thorough pelvic examination, the reaction of the discharge tested, smears obtained from the cervix and vagina, and a set of cultures made. Gross pathologic lesions were corrected surgically. The usual hygenic measures were instituted. The most usual and most difficult focus to eradicate lies in the endocervix. Unless the discharge is essentially of vulvovaginal origin, radium is advocated in all severe cases of persistent chronic leucorrhea. After thorough dilatation, the cervix and fundus may be curetted for diagnostic purposes. Fifty mg. of radium, preferably two 25 mg. tubes in tandem, are introduced high into the cervix, held by a suture passed through the external os, and left for several hours. One or more subsequent radium treatments of shorter duration may be required. It is best to plan on an interval of from ten to twelve weeks between applications. Each radium tube employed in the treatment of this series of cases was screened by a double gold capsule with a total thickness of 2 mm. The capsule in turn was incased in dental rubber. Examination of cervical tissues after successful radium treatment reveals atrophy of the glands, relative increase in fibrous tissue, and disappearance of microscopic evidences of infection. Skene's ducts harbor the next most important focus. At the time of radium application, or under procain anesthsia, the blunt end of a needle, held in forceps, is threaded into the duct lumen, and its end is forced through the base of the duct so that the needle head protrudes into the vagina. The duct is split with a knife and the tract fulgurated. Bartholin duct infection may be eradicated by similar treatment. Infected Bartholin glands rarely require excision. The urethra is occasionally treated by dilatation, aided by instillations of weak silver nitrate solution. Twenty-five patients were cured; 7 were improved; 4 were not improved; in 10 cases no report can be made as yet.

Radium Treatment of Non-malignant Uterine Bleeding. Some Immediate After-Effects. WILLIAM P. GRAVES, Boston, *New York Medical Journal*, June 5, 1920.

While the author is an enthusiastic exponent of radiotherapy in uterine bleeding, he calls attention to some disagreeable sequelae, upon which not sufficient stress has been placed by writers on this subject. The most common of these is nausea. The author finds it more severe than after curettage. The radium is applied under slight gas-oxygen anesthesia, but the nausea cannot be entirely explained by the anesthesia. Striking relief is often obtained as soon as the radium is removed from the uterus. The origin of the nausea cannot be definitely explained, but it is probably due to the fact that the radium acts as a foreign body. Persistent bleeding is an occasional aftereffect. It is most common in cases of myomata of the uterus. It cannot be explained. A thin watery discharge is most often present after bleeding has been partly or completely checked. It usually lasts from a few days to several months. The discharge is probably due either to superficial necrosis of the endometrium, or a stimulation of the endometrial glands. Pain in the pelvis should not occur except in the presence of adnexal disease. It is of serious import, because it is usually a forerunner of an inflammatory process. The author presents two illustrative cases. Very rarely there may be an exacerbation of a latent nephritis. Nervous symptoms are of peculiar interest. If menses are inhibited, hot flushes are common but not constant. The influence of the ovarian secretion is strikingly illustrated in cases where after a period of amenorrhea, the menses return, with a complete synchronous disappearance of the flushes. Occasionally, even in

the absence of other ovarian symptoms, there may a specific depressing influence on the nervous system. However, this occurs in patients of neurotic taint who might react to any other agent in a similar manner.

Radium-X-Ray Therapy of Carcinoma Uteri and Uterine Bleeding. FRANK S. BISSEL, Minneapolis, *Minnesota Medicine.* June, 1920.

Bissel calls attention to the ever-increasing importance of radio-therapy in the field of uterine carcinoma and other conditions associated with bleeding. The choice of method in carcinoma of the cervix, whether to operate or radiate, is still an open question, but the tendency seems to be towards radiation. The author believes that combined radium and *x*-ray therapy is the treatment of choice in all cases of cancer of the cervix. In the early cases, conservative surgery followed by radiation is justifiable, but probably the latter alone will prove equally effectual. In carcinoma of the fundus, surgical results have been good and all these cases should be submitted to operation. As in all other cancer cases the patient should be given the added benefit of post-operative radiation. Radiation should be accepted as a specific in the menorrhagias due to myoma or fibrosis or those of unknown etiology. Bissel reports some striking cases of cures in the conditions above-mentioned.

Pneumoperitoneum and X-Ray Examinations. B. H. ORNDORFF, Chicago. *Illinois Medical Journal,* June 1920.

After discussing in detail the technic of the procedure of producing pneumoperitoneum, and the method of radiography, the author feels justified in presenting the following summary.

1. Pneumoperitoneum is not difficult to produce and while a few important points in technique are essential, they require no special training other than the training of a physician.
2. The size, position, mobility, relative density, variations in contour, contents and cavities of the abdominal viscera can be visualized and studied in a manner which opens to physicians entirely new possibilities.
3. Findings are encountered which seem to invite the conclusion that the basis for possibly new clinical disease entities have been established.
4. Peritoneal adhesions between abdominal viscera and the anterior abdomial wall are demonstrated without difficulty. The importance of the functional pathology originating from this source will be studied carefully by the workers in this branch of medicine.
5. Fixation of the gastrocolic omentum to the anterior abdominal wall is frequently accompanied by the symptom of vomiting with or without nausea. In seven cases the symptom was relieved by pneumoperitoneum and returned when the gas was absorbed.
6. Perihepatitis, perisplenitis and pericolitis with fixation by peritoneal adhesions to adjoining viscera offer new phases for the study of functional pathology of these organs.
7. After pneumoperitoneum has been produced, aid in diagnosis is offered by filling of the colon, stomach, intestines, bladder, kidney, etc., with oxygen. Variation in the diameter of the walls of the hollow viscera with changes in relative density and the presence of new growths may be detected.
8. Post-operative peritoneal adhesions to the anterior abdominal wall may be prevented by keeping the peritoneal cavity distended with oxygen for a few days following operative procedures.
9. Pneumoperitoneum produced with oxygen probably possesses therapeutic virtue in peritoneal tuberculosis.

Puerperal Infection treated by Intravenous Injections of Ammonical Sulphate of Copper. (*Les Infections Puerperals traitées par les Injections Intraveinenses du Suefat de Cuivre.*) H. NOIRE, *La Presse Medicale,* June 5, 1920.

The author reports four cases of puerperal infection cured by intravenous injections of the above-mentioned salts after other methods had failed. These observations correspond with those published by Maute in July, 1918, on the action of the salt in cases of streptococcemia. The action seems to be of a specific chemotherapeutic nature. The ammoniacal is preferable to the ordinary copper sulphate, because its injection is followed by no untoward symptons or reactions. The chemical preparation of the ammonical salt is described. The author advises injections morning and evening of 8 cgm. of the prepared salt, to be continued until the fever subsides. This usually occurs within three days after the treatment has been instigated.

Radiologic Exploration of the Kidney. Fluoroscopy and Radiography of the Kidney with Peritoneal Insufflation. (*L'Exploration Radiologique des Reins. La Radioscopie et Radiographie du Rein par le Procéde de L'Insufflation Peritoneale*). RIBADEAU-DUMAS, MALLET AND LAULERIE, France, *Paris Medical,* June 12, 1920.

The authors describe the marked advantages of radioscopy after peritoneal insufflation over *x*-ray pictures obtained by the ordinary method. For pictures of the kidney they inject one to two liters of oxygen. Pictures are taken in three positions to obtain complete and accurate information. These are named the left lateral, the right lateral, and the abdominal. The last named gives the most information. To determine accurately the form, size and position of the kidneys, all three positions may be necessary. Displacements are easily recognized, although errors may be made in interpretation due to the angle at which the pictures are taken. In the nephritides the *x*-ray may occasionally show the surface irregularities and sub-cortical cysts. Hydronephrosis gives an enormuos shadow, smooth and regular in outline. Tumors of the kidney also throw very large shadows. but these are irregular in outline and indented giving the shadow an entirely different aspect from that of hydronephrosis. Polycystic growths of the kidney show large shadows with numerous arc-shaped irregularities. As in radiography of other abdominal organs, the introduction of peritoneal insufflation has marked a tremendous advance in the science of diagnosis.

A Troublesome Complication of Gonorrhea. Its Treatment. HAMILTON W. MCKAY, Charlotte, N. C., *The Urologic and Cutaneous Review,* June, 1920.

McKay performed the following operation in his series of cases of acute epididymitis: The testis was held firm and rotated on its upper pole. An incision one and a half to two inches long was made down to the tunica vaginalis. The scrotal contents having been delivered, the tunica vaginalis was opened and the contents of the accompanying hydrocele evacuated. The epididymis was exposed and at some selected point opened with a cataract knife. A Hagedorn needle was introduced and the point of suppuration sought for. Drainage was instituted, and the incision closed. The following conclusions are presented:

1. Epididymotomy is the logical treatment in the majority of cases of gonococcal infection of the epididymis, because this operation is based on pathological findings which are essentially surgical.
2. By the immediate relief of the severe pain the patient is rendered comfortable and convalescence is much shorter than in cases which are treated locally.
3. A very small percentage recur following epididymotomy, while the surgeon has the advantage of being able to treat the posterior urethra almost immediately after operation.
4. By the relief of tension in the early stage of the infection the prospect of sterility is minimized.
5. Early operation (within the first three or four days after the first presenting symptoms) will afford the best results.
6. In recurrent infections of the epididymis, one not only can remove a troublesome focus, but in epididymotomy, we have a valuable asset in preventing sexual neurasthenia.

Acriflavine in the Treatment of Gonorrhea. ABRAHAM HYMAN, New York, *The Urologic and Cutaneous Reivew,* June, 1920.

Hyman has tested out this new antiseptic in the treatment of acute gonorrhea urethritis and is quite enthusiastic about the results, especially in early cases of anterior urethritis. The report is based upon fifty-five cases.

In acute anterior urethritis, the drug is of considerable value, if the patients are seen within three to four days after the appearance of the discharge. A cure may then be expected within two weeks' time in about 50 per cent. of the cases; if no result has been obtained by this time the infection, unless complications develop, generally runs its usual course of four to six weeks. If the disease is not controlled after two or three weeks treatment, better results will then be obtained by changing to injections of protargol or argyrol.

In acute anterior-posterior infections there was not much of an improvement over the other methods of treatment in vogue, the average length of time being forty-three days to effect a cure.

In chronic anterior urethritis, the results depend more on the dilatations and urethroscopic treatments than on the flavine injections.

In complicated cases (prostatitis, vesiculitis), the results show no improvement over the drugs generally in use.

The action of flavine as an injection is not at all reliable. Brilliant results will be obtained in a certain percentage of cases, coupled with numerous failures in similar type infections. As it is extremely irritating in 1-1,000 solution after it has been used for a few days, a 1-1,500 dilution is preferable. Even though the discharge ceases within four to five days, treatment should not be suspended. The injections should be continued for eight to ten days, or relapses will be frequent. The great disadvantage of flavine is its marked staining properties, discoloring everything that it comes in contact with a bright yellow.

During the past month Hyman has discontinued the use of acriflavine in injection form, and resorted to irrigations as recommended by Watson. The results in ten additional cases have been far superior to those obtained with the more concentrated injection. Irrigations of a 1-4,000 in normal saline solution were used once daily, and in this dilution the drug is absolutely non-irritating, even when injected intravesically. Of the ten cases (8 anterior infections, 2 anterior-posterior), six were cured within two weeks time, the remaining two in three weeks. The discharge, no matter how profuse, practically disappears at the end of the first week's treatment; or becomes very scant and mucoid in character. Acriflavine in strengths of 1-6,000 to 1-4,000 in normal saline solution is the best antiseptic for irrigations in the treatment of specific urethritis.

Blood Transfusion via the Longitudinal Sinus, with Report of Cases. HARRY LOWENBURG, Philadelphia. *The Therapeutic Gazette,* June 15, 1920.

After discussing the indications for transfusion in infants, and the availability of the longitudinal sinus for this purpose, the author describes in detail the technic of the procedure. Four persons are needed to carry out the procedure successfully. Two nurses and two physicians. The infant's body is so wrapped that his limbs are immobilized. It should lie prone upon the table of such a height that the operator can work at ease while sitting. The child's head should rest firmly in the hollow of the nurse's hands. The apparatus required are one half-dozen needles of 1/16 inch bore, one 10 cc. Luer syringe, and three 50 cc. Luer glass syringes. The syringes and needles should be sterilized in a weak soda solution. The area over the fontanel is shaved and painted with iodine. The posterior angle of the fontanel is accurately located with the index finger of the left hand. The 10 cc. Luer syringe, with the needle attached, is partly filled with sterile saline solution. The tip of the needle is plunged just beneath the surface of the skin exactly in the midline in the posterior angle. As the tip enters the lumen of the sinus the fact is revealed by the appearance of blood within the lumen of the syringe. The rest of the procedure is similar to that used in the ordinary indirect transfusion by the syringe method. The author has transfused 14 children, six by the sinus method. The immediate results are startling as in most transfusions. The remote results depend upon the condition for which the transfusion is done.

Novocaine Anesthesia. Some Disadvantages from a Surgical Standpoint. G. H. C. ST. GEORGE GRIFFIN, London. *The Lancet,* May 1, 1920.

Griffin reviews in an informal way the obstacles and difficulties met when operating under local anesthesia. It might be comforting to know that other surgeons in other lands experience about the same difficulties that we do ourselves.

To operate really successfully under novocaine requires more precision, neatness, and surgical skill than under general anesthesia. A rough and clumsy operator could never succeed, except in frightening and giving considerable pain to his patient. Perhaps the most vital point to remember is the exact limits of the area of anesthesia. There are also certain characteristic minor difficulties which practice can alone render familiar. For instance, following the cutaneous incision, the underlying tissues never look normal owing to a peculiar edematous and mucoid appearance of the fat and muscle. To this may be superadded an unnatural blanching of the same structures if adrenalin is used with the novocaine solution. These masking and deceptive appearances may result in anatomical errors being made until the operator is familiar with them.

Again, the non-relaxation of muscular tissue is bound to hamper the operator both in his speed and manipulations. In reference to speed, the author's average time for a Bassini's radical cure of hernia is 15 to 20 minutes, but is increased through the difficulties already mentioned to 25 to 30 minutes under local anesthesia.

Post-Operative Complications.

1. Local Complications.—In this group reactionary hemorrhage must be mentioned. This complication was met in a small percentage of cases operated on, although the proportion was always higher than with general anesthesia. The hemorrhage was never alarming nor serious, but varied from an extensive ecchymosis of the skin around the incision to a fair-sized hematoma in the cellular planes. Reactionary hemorrhage always occurred in novocaine anesthesia to which adrenalin had been added. There are two ways to prevent the possibility of this complication: firstly, to withhold the adrenalin altogether. This is certainly the safest method to avoid reactionary hemorrhage. It is a curious fact that primary hemorrhage in the incision is far freer with novocaine alone than with a general anesthetic. The alternative remedy is to rub any probable sites of small-named vessels to promote hemorrhage with a view to applying a ligature to each unruly point discovered.

Another phenomenon that appeared in practically all the cases operated upon was a serous discharge from the incision. This usually ceased about the seventh or ninth day. In itself the discharge is unimportant as regards the future scar, except possibly when Michel's clips are used. In these wounds the cutaneous margins are approximated so closely that no serous exudation can escape. Serum collects in the field of the operation, and is further increased by osmosis from the neighboring tissues by the salts of novocaine and adrenalin remaining in the tissues after operation. The last local complication to be mentioned is the presence of intense pain in the site of the operation which comes on some hours after the operation.

2. General Complications.—Alleged insomnia was so common that it was proverbial for each patient to state next morning that he had not slept a wink. Intense headaches were also noted in a few cases. Rather severe pain was often complained of in the lumbar region, especially with inguinal operations. Thirst was frequently present during the actual operation, whereas flatulence appeared equally commonly on the following day.

Retention of urine was far commoner after novocaine anesthesia than after similar operations performed under a general anesthetic, the frequency of the retention depending partly on the roughness of the surgeon in handling the parts.

The number of chest complications under novocaine anesthesia were almost as great as those that followed general anesthesia. An interesting but curious postoperative symptom was the appearance of a definite, but slight tint of jaundice in the conjunctivæ. The jaundice set in always on the second day after the operation and occurred in at least 30 per cent of cases. It eventually disappeared at the end of the week. It never extended to the skin nor other mucous membranes. The feces were of normal color, whilst bile-pigments could never be found in the urine. The pathology of the condition requires investigating as only two similar cases followed general anesthesia.

Book Reviews

Advanced Lessons in Practical Physiology for Students of Medicine. By Russell Burton-Opitz, S.M., M.D., Ph.D., Associate Professor of Physiology, Columbia University; Professorial Lecturer in Physiology in Teachers College and the Extension Department of Columbia University. Octavo; 228 pages; 123 illustrations. Philadelphia and London: W. B. Saunders Company, 1920.

In this manual Prof. Burton-Opitz, whose text-book of physiology was recently reviewed in these columns, has prepared an outline of the experiments and demonstrations that constitute an advanced student's laboratory course in physiology. It is arranged to stimulate the student to observation and inquiry, to teach him familiarity with physiological apparatus and methods of phvsiological research. It constitutes a comprehensive laboratory course.

The Case History Series: Diseases of Women, including Abnormalties of Pregnancy, Labor and Puerperium. A Clinical Study of Pathological Conditions Characteristic of the Five Periods of Woman's Life. Presented in One Hundred and Seventy-three Case Histories. By Charles M. Green, A.B., M.D., Professor of Obstretrics and Gynecology, Emeritus, in Harvard University; Senior Surgeon for Diseases of Women, Boston City Hospital; Formerly Visiting Physican, Boston Lying-In Hospital; Fellow of the American College of Surgeons; Fellow of the American Gynecological Society. Octavo; 466 pages; illustrated. Boston: W. M. Leonard, 1920.

Prof. Green's book is as thorough and successful an example of the case-book system of teaching as can be found. It shows excellent judgment in the selection of illustrative cases, and gives terse yet sufficiently full resumés in the didactic introductory remarks of each chapter. It might have been wise to introduce cases illustrating the non-success of therapeutic measures occasionally and, for example, in illustrating eclampsia, to have emphasized the numerous fatalities bound to occur under any form of treatment. A certain quaint class distinction, redolent of the Boston Back Bay region of days gone by, crops out here and there, giving a not unpleasant cachet which has become rare in modern medical literature.

A Text Book of Urology in Men, Women and Children, including Urinary and Sexual Infections, Urethroscopy and Cystoscopy. By Victor Cox Pedersen, A.M., M.D., F.A.C.S., Major, Medical Corps U. S. Army; Visiting Urologist to St. Mark's Hospital, New York; Member, American Urological Association. Large Octavo; 991 pages; 362 engravings and 13 colored plates. Philadelphia and New York; Lea & Febiger, 1919

The title and subtitle of this treatise fairly indicate its purpose and its scope. While some of the affections of the bladder, ureters and kidneys are included, the greater part of the work is devoted to urethral (chiefly gonococcal) infection, its sequelae and complications. Within that sphere the work is to be commended for its painstaking thoroughness and modernity. Pathology, clinical course, diagnostic measures, therapeutic indications and methods are dealt with in detail, and proper emphasis is laid upon after-treatment and upon standards of cure. Urethroscopy and cystoscopy constitute two chapters in which these subjects are well handled. The book is well illustrated, many of the photographs being original. Figures 61 and 62 (roentgenograms) are both inverted. We note, too, here and there, errors of composition that ought to have been corrected; for example, *fenestrum* instead of *fenestra*, *mucus patch* instead of *mucous patch* (page 214), "Tendency to chronic thickenings in older cases are [*sic*] seen" (page 210.)

Although this text-book describes very briefly many of the major operations on kidney, bladder, prostate, it is not to be regarded as a work on genito-urinary surgery and, we take it, its author did not intend it so to be. He has produced, however, an extensive work on "Urology"—using the term in a sense much broader than its strict definition (urinology), but less inclusively than it is often, but incorrectly, applied.

The Nose, Paranasal Sinuses, Naso-Lacrimal Passageways, and Olfactory Organ in Man. A Genetic, Developmental, and Anatomico-Physiological Consideration. By J. Parsons Schaeffer, A.M., M.D., Ph.D., Professor of Anatomy and Director of the Daniel Baugh Institute of Anatomy of the Jefferson Medical College of Philadelphia; formerly Assistant Professor of Anatomy. Cornell University Medical College and Professor of Anatomy, Yale Medical School. Quarto; 370 pages; 204 illustrations, of which 18 are in color. Philadelphia: P. Blakiston's Son & Co., 1920.

The reviewer of this new work believes that its careful study is the duty of everyone who desires to do conscientious work in rhinology. It presents anatomic data that the specialist should learn.

A review along the usual lines would not be doing justice to the author. His aim has been to bring to the profession the exact embryology, infant and adult anatomy of a part of the body which seldom has been studied carefully. His research covers a great many years, during which time he has analyzed a number of specimens. The statements in the book are the absolute truth of anatomical observation and not the guess-work of the average specialist who founds his knowledge on clinical facts.

There is not a chapter in the book that is not worth while reading carefully. One sees opening before him the development of the various sinuses of the nose, and perhaps for the first time realizes the great difference between these parts in early childhood and in adult life. None can gainsay the importance of this knowledge. For example, the author proves to us that the antrum originates from the ethmoid labyrinth, that it is hardly present at all in early life, that the deciduous and permanent teeth lodge in this maxillary region and that any attempt to open the antrum at an early age might result in permanent impairment of the teeth. We believe that not in years has there been written a book of more benefit to the otolaryngologist and the ophthalmologist.

Regional Anesthesia (Victor Pauchet's Technique). By B. Sherwood-Dunn, M.D., Officer d'Academie; Surgeon (Colonel) Service De Santé Militaire de Paris; Physician to the Cochin Hospital. Octavo: 294 pages; 224 illustrations. Philadelphia: F. A. Davis Company, 1920.

Professor Victor Pauchet, acknowledged to be the leading exponent of regional anesthesia in France, has advanced our knowledge of this fascinating subject to such an extent that this timely book by Dunn will be welcomed by the medical profession of America.

Local anesthesia (the infiltration of tissue with weak solution of cocain, as practiced by Réclus, Schleich and

others, for over thirty years) is still of a great deal of value, particularly in operations on the nose and throat. Regional anesthesia differs from this in so far as the anesthetic is applied to the origin of the nerves, instead of to their terminals. It is injected at the point of origin of the nerves, or along the nerve trunk near the point of origin so that the whole region supplied by the nerve and its branches is anesthetized.

The book is divided into seven chapters dealing with general considerations, such as the advantages of the method; armamentarium; and the last five chapters to anesthesia of various parts of the body, such as the cranium, head and neck, thorax and abdomen, genito-urinary tract and abdomen, extremities.

The author uses procain (novocain or neocaine) in all his operations, adding twenty-five drops of a 1-1000 adrenalin solution to 200 drops of ½ per cent. procain solution. The amount of adrenalin is increased as the necessity arises.

In certain regions of the body which are often governed by several branches of nerves, supplied by different roots, peripheral infiltration is combined with root anesthesia. This applies particularly to operations on the nose and throat.

Local anesthesia is gaining greater popularity. At first it was employed mainly in the simpler operations, but apparently, if one may rely on the illustrations which accompany the text of this book, there is hardly any operation on the human body which cannot be performed more expertly this way. One of the greatest advantages, aside from the elimination of the danger and distress of general anesthesia, is the complete lack of hemorrhage.

We agree with the author that this method should not be practiced until the surgeon has learned the procedures by thorough study of the anatomy of the nerves which supply the various regions to be operated upon and has tried upon the skeleton to find the depths and angles of the emergence of the nerves.

Books Received

Lehrbuch der Chirurgie. By PROF. DR. CARL GARRÉ, Direktor Chirurg. Universitatsklinik in Bonn A. Rh., and PROF. DR. A. BORCHARD, Berlin-Lichterfelde. Octavo; 675 pages; illustrated. Leipzig: F. C. W. VOGEL, 1920.

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The Treatment of Wounds of Lung and Pleura. Based on a Study of the Mechanics and Physiology of the Treament of Empyema. By PROFESSOR EUGENIO MORELLI, Assistant in the Medical Clinic of the Royal University of Pavia, Maggiore Medico, Field Hospital, No. 79. Translated from the Italian by LINCOLN DAVIS, Formerly Lieutenant-Colonel, M. C., U. S. Army and FREDERICK C. IRVING, formerly Major, M. C., U. S. Army. Octavo; 207 pages; illustrated. Boston: W. M. LEONARD, 1920.

Diseases of the Intestines and Lower Alimentary Tract. By ANTHONY BASSLER, M.D., Professor of Gastro-Enterology, Fordham University Medical College and New York Polyclinic Medical School and Hospital; Visiting Physician, New York Polyclinic Hospital: Visiting Gastro-Enterologist, Peoples' Hospital; Consulting Gastro-Enterologist, Stuyvesant Polyclinic, Beth-David and Christ's (N. J.) Hospitals; Fellow, American College of Physicians and New York Academy of Medicine, etc. Octavo, 636 pages; 154 text engravings and 62 full-page plates. Philadelphia: F. A. DAVIS COMPANY, 1920.

Pathogenic Micro-organisms. By WILLIAM HALLOCK PARK, M.D., Professor of Bacteriology and Hygiene, University and Bellevue Hospital Medical College and Director of the Bureau of Laboratories of the Department of Health, New York City; and ANNA WESSELS WILLIAMS, M. D., Assistant Director of the Bureau of Laboratories of the Department of Health; Consulting Pathologist to the New York Infirmary for Women and Children. Assisted by CHARLES KRUMWIEDE, JR., M. D., Assistant Director of the Bureau of Laboratories, Assistant Professor of Bacteriology and Hygiene in the University and Bellevue Hospital Medical College, New York City. Seventh Edition. Octavo; 747 pages; 214 engravings and 9 plates. Philadelphia & New York: LEA & FEBIGER, 1920.

The Dawn of Modern Medicine. An account of the Revival of the Science and Art of Medicine Which Took Place in Western Europe During the Latter Half of the Eighteenth Century and the First Part of the Nineteenth. By ALBERT H. BUCK, B.A., M.D., Formerly Clinical Professor of Diseases of the Ear, Columbia University, New York; Consulting Aural Surgeon, New York Eye and Ear Infirmary, etc. Octavo; 270 pages; illustrated. New Haven: YALE UNIVERSITY PRESS, 1920.

The Accessory Sinuses of the Nose. By Ross HALL SKILLERN, M.D., Professor of Laryngology, Medico-Chirurgical College, Post Graduate School, University of Pennsylvania; late Lieutenant-Colonel, M. C. U. S. A.; Fellow of American Laryngological Society; Fellow of American College of Surgeons; Fellow of the American Laryngological, Rhinological and Otological Society; Fellow of the New York Academy of Medicine; etc., etc. Octavo; 410 pages; 300 illustrations; third edition. Philadelphia: J. B. LIPPINCOTT, 1920.

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Neither Dead Nor Sleeping. By MARY WRIGHT SEWELL. With an Introduction by BOOTH TARKINGTON. Duodecimo; 320 pages. Indianapolis; THE BOBBS-MERRILL COMPANY, 1920.

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